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ENTERED AT THE POSTOFFICE, MEDINA, OHIO, AS SECOND-CLASS MATTER.

VOL. XIX. NO. 5.

MARCH 1, 1891.

PEACE ON EARTH
GOOD WILL TOWARD MEN

CLEANING IN BEE CULTURE

DEVOTED
TO

& HOME INTERESTS.

MEDINA OHIO
BY
A. ROOT

TERMS, ONE DOLLAR PER YEAR.

FRANKLIN, DUNGLIN, N.Y.

Gleanings in Bee Culture.

Established in 1873.

Devoted to Bees, Honey, and Home Interests.

Published semi-monthly by

A. I. ROOT, - MEDINA, O.

A. I. ROOT, EDITOR.

ERNEST R. ROOT, - ASSOCIATE EDITOR.

J. T. CALVERT, BUSINESS MANAGER.

Terms. \$1.00 per annum; two years, \$1.80; three years, \$2.50; five years, \$3.75 *in advance*; or two copies to one address, \$1.80; three copies, \$2.50; five copies, \$3.75. These terms apply both to the United States, Canada, and Mexico. To all other countries in the Universal Postal Union, 18 cents per year extra for postage. To all countries out of the U. P. U., 42 cents per annum extra.

Discontinuances. The journal is sent until orders are received for its discontinuance. We give due notice when the subscription expires, and further notice if the first is not heeded. Any subscriber whose subscription has expired, wishing his journal discontinued, will please drop us a card at once; otherwise we shall assume that he wishes his journal continued, and will pay for it soon. If you wish your journal discontinued at the end of the time paid for, specify that fact in ordering, and your wishes will be respected.

Terms to Agents Who Secure Subscriptions. Clubs to different postoffices, 90 cents each; or to the same postoffice, 75 cents each, providing that the names secured are for not less than \$1.00 each, nor advertised for less than \$1.00. In other words, a subscriber who, by personal solicitation, secures subscriptions in his own locality, may retain 25 cents for every name taken for \$1.00; but at least half the names so secured must be new, and cash must accompany order.

Receipts for Money. We send no receipt for subscription money. The change of the date on the little label shows you that the money has been duly received, and credited. During December and January it sometimes takes us three or four weeks before the date is changed.

How to Send Money. You can send money at our risk by P. O. order, express money-order, or bank check or draft, and where none of these means are available, by registered letter. Money sent in any other way is at your risk. We pay no exchange or express charges on money. Be sure to sign your express money-order, or indorse your check or draft, if not made payable to order of A. I. Root. If you neglect this it will have to be sent back to you.

Rates of Advertising. On not less than 5 lines, per single insertion, and for a uniform space each issue, our rates per nonpareil line are as follows:

TIME RATES.

1 to 2 insertions, per line	20c
3 to 5 " " "	19c
6 to 11 " " "	18c
12 to 17 " " "	17c
18 to 23 " " "	16c
24 insertions " " "	15c

On from 3 to 7 inches space, 1c per line less than above rates.

On 8 inches or more, 2c per line less.

On less than 5 lines space, 1c per line more than above rates.

SPACE RATES.

There are those who would like the privilege of lengthening or shortening their ad., according to the season; i. e., large display advertisements, during the busy rush, and small ads. during the dull season. We append a table of "space rates," but it should be understood that the discounts are not quite as liberal as the "time rates" above. We will sell space, to be taken out any time within a year, to be used at the option of the buyer, at the following rates:

100 lines	\$ 19.00
200 lines	37.00
500 lines	85.00
750 lines	125.00
1000 lines	165.00

In contracting for advertising, be sure to specify whether you wish *time* or *space* rates.

For electrotyped advertisements we will allow an additional discount of 5 per cent on both time and space rates.

A. I. ROOT, Medina, O.

CLUBBING LIST.

We will send GLEANINGS—		
With the American Bee-Journal, W'y	(\$1.00)	\$1.75
With the Canadian Bee Journal, W'y	(.75)	1.65
With the Bee-Keepers' Review,	(1.00)	1.75
With the British Bee-Journal,	(1.50)	2.00
With American Apiculturist,	(.75)	1.70
With American Bee-Keeper.	(.50)	1.40
With all of the above journals.		5.65

With American Agriculturist,	(\$1.50)	2.25
With American Garden,	(2.00)	2.60
With Prairie Farmer,	(1.50)	2.35
With Rural New-Yorker,	(2.00)	2.90
With Farm Journal,	(.50)	1.20
With Scientific American,	(3.00)	3.75
With Ohio Farmer,	(1.00)	1.90
With Popular Gardening,	(1.00)	1.85
With U. S. Official Postal Guide,	(1.50)	2.25
With Sunday-School Times, weekly,	(1.50)	1.75
With Drainage and Farm Journal,	(1.00)	1.75
With Illustrated Home Journal,	(.50)	1.35
With Orchard and Garden,	(.50)	1.40

[Above Rates include all Postage in U. S. and Canada.]

Names of responsible parties will be inserted in any of the following departments, at a uniform price of 20 cents each insertion, or \$2.00 per annum, when given once a month, or \$4.00 per year if given in *every* issue.

Untested Queens

FOR \$1.00 FROM JULY 1ST TILL NOV. 1ST.

Names inserted in this department the first time without charge. After, 20c each insertion, or \$2.00 per year.

Those whose names appear below agree to furnish Italian queens for \$1.00 each, under the following conditions: No guarantee is to be assumed of purity, or anything of the kind, only that the queen be reared from a choice, pure mother, and had commenced to lay when they were shipped. They also agree to return the money at any time when customers become impatient of such delay as may be unavoidable.

Bear in mind, that he who sends the best queens, put up most neatly and most securely, will probably receive the most orders. Special rates for warranted and tested queens, furnished on application to any of the parties. Names with * use an imported queen-mother. If the queen arrives dead, notify us and we will send you another. Probably none will be sent for \$1.00 before July 1st, or after Nov. If wanted sooner, or later, see rates in price list.

*A. I. Root, Medina, Ohio.	
*H. H. Brown, Light Street, Col. Co., Pa.	7td90
*Paul L. Viallon, Bayou Goula, La.	7td90
*S. F. Newman, Norwalk, Huron Co., O.	7td90
C. C. Vaughn, Columbia, Tenn.	9td90
Jenkins & Parker, Wetumpka, Ala.	9td90
J. B. LaMontague, Winter Park, Orange Co., Fla.	57-9d

*Oliver Hoover & Co., Snyderstown, Northumberland Co., Pa.

Hive Manufacturers.

Who agree to make such hives, and at the prices named, as those described on our circular.

A. I. Root, Medina, Ohio.	
P. L. Viallon, Bayou Goula, Iberville Par., La	7td90
C. W. Costellow, Waterboro, York Co., Me.	7td90
R. B. Leahy, Higginsville, Laf. Co., Mo.	9td90
Jenkins & Parker, Wetumpka, Ala.	9td90
W. T. Falconer Mfg. Co., Jamestown, N. Y.	7td

HUBBARD SECTION PRESS, HUBBARD BEE HIVE,

Folding Sections a Pleasure.



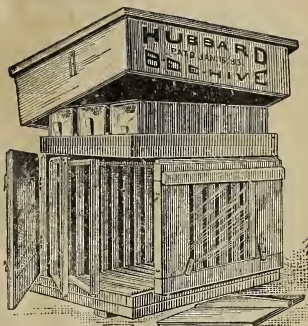
And other Apian Supplies.
Send for descriptive circular.

C. K. HUBBARD,
Fort Wayne, Ind.

This Section Press (Pat. June 17, 1890) is far in advance of anything else of the kind on the market. It is practically automatic. Both hands can be used to handle the sections, and a slight forward push forces together the dovetailing, thus completing the sections with marvelous rapidity. Price \$2.50. Ask your supply dealer for it. Supply dealers, send for wholesale prices.

The HUBBARD HIVE has been in use 8 years, and has stood the test nobly. Trade has been constantly growing, owing to the excellent satisfaction it gives. If you are ever annoyed by the scraping and breaking of combs; killing bees when setting a frame to one side or hanging it in the hive; sagging at the bottom and setting waxed fast; shaking about when moving a hive; in short, if you dislike to pry and wrench your frames, break combs and kill bees while handling them you will be pleased with this hive.

The Man Who is Willing to Work can make money fast selling these hives. \$5.00 to \$10.00 often made at it in a day.
Send for Circular.



SECTIONS, SMOKERS, DADANT'S COMB FOUNDATION, ETC.

For revised "1st Principles in Bee Culture" 104 pages—the largest and best work of the kind for the price. First 68 pages contain no advertisements, but are filled with such practical information as how to divide, transfer, introduce Queens, feed, unite, stop robbing, raise honey, etc. The book receives many compliments. If you do not like it, return it and get your money.

15c

In responding to this advertisement mention GLEANINGS.

LIGHT BRAHMAS

Autocrat Strain, pure bred. Eggs, \$2.00 per 15, \$3.00 per 30.

POLAND CHINA PIGS,



With pedigrees eligible to record.

F. M. SHELL, Yeddo, Ind.

In responding to this advertisement mention GLEANINGS.



NOW, FRIENDS, LOOK HERE!

I sell the Nonpareil Bee-Hive, White Poplar Sections, Italian Bees and Queens. Price List free. Write for one.

A. A. BYARD, West Chesterfield, N. H.
In responding to this advertisement mention GLEANINGS.

Comb-Foundation Mills.

Made by

1-5db

W. C. PELHAM,
Maysville, Ky.

In responding to this advertisement mention GLEANINGS.

HIVES and SUPPLIES.

We are prepared to furnish bee-keepers with supplies at low prices.

TAKE NOTICE.

Don't forget that the Albino bees are ahead. Our queens are as fine as the finest, and as good as the best. We also have the Golden Italian, which are good honey-gatherers.

Send for prices and see how low we sell them.

S. VALENTINE,

Hagerstown, Wash. Co., Md.

In responding to this advertisement mention GLEANINGS.



CHEAP ENOUGH.

Sections, \$3.00 per 1,000. Foundation, 45 cts. per pound; Chaff Hives, \$1.25 each; Simplicity hives, 90 cts. each; Dovetailed hives, 80 cts. each, and every thing needed in the apiary, cheap. Send for illustrated price list for 1891, free.

"How I Produce Comb Honey," by mail, 5 cts. Third edition just out. Address

GEO. E. HILTON, Fremont, Mich.

Please mention this paper.

3trdb



THE universal favor accorded TILLINGHAST'S PUGET SOUND Cabbage SEEDS leads me to offer a P. S. GROWN Onion, the finest Yellow Globe in existence. To introduce it and show its capabilities I will pay \$100 for the best yield obtained from 1 ounce of seed which I will mail for 30 cts. Catalogue free.

Isaac F. Tillinghast, La Plume, Pa.

In responding to this advertisement mention GLEANINGS.

10 pkts. SEEDS 25 Cts.

For 25c we will send you terms to agents, and the following 10 pkts. of seeds, that you may have a few samples to show to your friends when taking orders. Winningstadt Cabbage; Seminole Watermelon; Early Red Turnip Beet; Hollow Crown Parsnip; Grand Rapids Lettuce; Rosy Gem Radish; Montreal Muskmelon; Golden Queen Tomato; ½ pt. Alaska Peas (10c pkg.); Mikado Tomato.

4 7db

G. D. BLACK & SONS,

INDEPENDENCE, IOWA.

SEED GROWERS.

In writing to advertisers please mention this paper.

FREE!

My price list of Italian bees and queens for 1891.

5d **D. E. JACOBS, Longley, Wood Co., O.**

Topics Discussed in Back Numbers

—OF THE—

BEE-KEEPERS' REVIEW.

VOLUME I.—1888.

Jan., Disturbing Bees in Winter.
Feb., Temperature in Wintering Bees.
Mar., Planting for Honey.
Apr., Spring Management.
May, Hiving Bees.
June, Taking Away the Queen.
July, Feeding Back.
Aug., Apian Exhibits at Fairs.
Sept., The Food of Bees in Winter.
Oct., Ventilation of Bee Hives and Cellars.
Nov., Moisture in Bee Hives and Cellars.
Dec., Sections, and their Adjustment on Hives.

VOLUME II.—1889.

Jan., Bee-Hives.
Feb., Mistakes in Bee-Keeping.
Mar., Which are the Best Bees?
Apr., Contraction of the Brood-Nest.
May, Increase, its Management and Control.
June, Shade for Bee Hives.

July, Queens, and their Influence upon Success in Bee Culture.
Aug., Migratory Bee-Keeping.
Sept., Outdoor Wintering of Bees.
Oct., Bee Conventions and Associations.
Nov., Specialty versus Mixed Bee-Keeping.
Dec., Bees Alone, or "Mixed;" if the latter, what with?

VOLUME III.—1890.

Jan., Brace-Combs and their Prevention.
Feb., Foul Brood.
Mar., Queen Rearing and Shipping.
Apr., The Production of Comb Honey.
May, Raising Good Extracted Honey.
June, Comforts and Conveniences for the Apiary.
July, From the Hive to the Honey Market.
Aug., Marketing.
Sept., Management after a Poor Season.
Oct., Out-Apiaries.
Nov., Apicultural Journalism.
Dec., Use and Abuse of Comb Foundation.

As the supply of volumes I. and II. is quite limited, the price is five cents a copy, except for the Jan., 1889, No., which is fifteen cents, there being only a few copies left. (Will pay eight cents each for copies of this issue. Of volume III. there is a fair supply, and the price is four cents a copy. Remember that each number is, in one sense, a little pamphlet giving the views of the best bee-keepers upon the topic mentioned. Remember, also, that the REVIEW has now been enlarged; a beautiful cover added, and the price raised to \$1.00 a year.

W. Z. HUTCHINSON, Flint, Mich.

☞ In responding to this advertisement mention GLEANINGS.

BUY YOUR ITALIAN QUEENS

From the

✕ Lone Star Apiary. ✕

I BREED FROM CHOICE IMPORTED STOCK. LEATHER COLORED.

Write for Price List. OTTO J. E. URBAN, Prop'r.,
Thorndale, Tex.

In writing advertisers please mention this paper.

Western Bee-Keepers' Supply House

Root's Goods can be had at Des Moines Iowa, at Root's Prices.
The largest supply business in the West. Established 1855
Dove-tailed Hives, Sections, Foundation, Extractors, Smokers, Veils, Crates, Feeders, Clover Seeds, etc. Imported Italian Queens, Queens and Bees. Sample copy of our Bee Journal, "The Western Bee-Keeper," and Latest Catalogue mailed Free to Bee-keepers.
JOSEPH NYSEWANDER, DES MOINES, IOWA.

tfdb

Please mention this paper.

☞ Bee-Keepers' Supplies.

WHY ✕ SEND ✕ LONG ✕ DISTANCES ?

SEND YOUR ADDRESS (DON'T FORGET THE COUNTY) FOR MY NEW PRICE LIST FOR 1891.

C. P. BISH, Grove City, Mercer Co., Pennsylv'a.

ESTABLISHED IN 1884.

Please mention this paper.

Printing,

Note Heads, Bill Heads, Envelopes,
Business Cards 250 for \$1.00

Post Paid. Good honest work and paper, 50 Ladies Cards in Steel Plate Script 25 c. No Samples. 12 Years in Business. Send Copy and dollar to
BURTON L. SAGE, New Haven, Conn.

☞ In responding to this advertisement mention GLEANINGS.

HONEY A NEW DISCOVERY.

Differing from all others ever yet made for the purpose.

EXTRACTOR.

It works strong, thorough, neat, handy and rapid, and is the cheapest Extractor known. Send 2-cent stamp for a circular of 18 pages to
REV. A. R. SEAMAN, Connellsville, Fayette Co., Pa. 5-15d

☞ In responding

to GLEANINGS.

1891. 12th Year.

HEADQUARTERS IN THE SOUTH

For the manufacture and sale of
BEE-HIVES AND BEE-KEEPERS' SUPPLIES,
Early Nuclei, and Italian Queens.

Send for Price List.

P. L. VIALLOU,

1tfdb Bayou Goula, La.
Please mention GLEANINGS.

IMPORTED QUEENS.

In May and June, each \$2.00
In July and August, each 1.80
In September and October, each 1.60

Money must be sent in advance. Safe arrival guaranteed. Queens that die en route, if returned in the letter, will be replaced by mail, postpaid. No order for less than 8 queens by express will be accepted.

1-11d CHAS. BIANCONINI,
Bologna, Italy.

Please mention this paper.



All kinds of Fruit and Ornamental Trees and Plants (new and old, strictly true to name) at almost half price.

Lovett's Guide to Horticulture gives their prices, merits and defects, and tells how to purchase, plant, prune, cultivate, etc. It is a book of over 80 pages, finely printed and profusely illustrated. Mailed free; with colored plates rec.

Trees and Plants to distant points by mail and express a specialty.

A copy of Orchard and Garden sent free to all who state where they saw this advt.

J. T. LOVETT CO., Little Silver, N. J.

In responding to this advertisement mention GLEANINGS.



"I tell you what, Jones, Levering Bros. sell the best goods and at the lowest prices of any one I've struck yet."

The LARGEST and BEST EQUIPPED BEE-HIVE FACTORY IN THE WEST.

THE NEW DOVETAILED HIVE A SPECIALTY.

Every thing used by practical bee-keepers by wholesale and retail. Send for our '91 illustrated price list and save money. Address

LEVERING BROS., Wicota, Cass Co., Ia.

In responding to this advertisement mention GLEANINGS.



In responding to this advertisement mention GLEANINGS.

SAVE FREIGHT

By buying your supplies near home. Catalogue for your name on a postal card. Address
4-8db J. W. ROUSE & CO., Mexico, Mo.

Please mention this paper.

HIVES AND FRAMES.

8-frame hive, with two supers, 90c; 10, \$8.00. Thick top brood-frames, with top-bar split to receive fdn-guide, per 100, 90c; other styles, \$1.00 per 100. No. 1 sections, \$3.00 per M. Parker fdn-fasteners, 20c, this month only. Circular free. 19-17d

SPECIAL RATES TO DEALERS.

Write us. W. D. SOPER & CO.,
118-120 Washington St. E., Jackson, Mich.
Please mention this paper.

NEW * FACTORY.

Bee-Hives, Sections, Frames, Etc.

We have moved into our new factory, which is the largest and most complete in the world. We make the best goods, and sell them at the lowest prices. Write for free illustrated catalogue.

G. B. LEWIS CO.,

17-tfdb WATERTOWN, WIS.

In responding to this advertisement mention GLEANINGS.

1891. NEW BEE-HIVE FACTORY. 1891.

Root's Dovetailed Hive a specialty. Price List free. Save your freight, and order early of

GEO. W. COOK,
Spring Hill, Johnson Co., Kan.
Please mention this paper.

PATENT WIRED COMB FOUNDATION

HAS NO SAG IN BROOD-FRAMES.

THIN FLAT - BOTTOM FOUNDATION

Has No Fish-bone in Surplus Honey.

Being the cleanest is usually worked the quickest of any Foundation made.



J. VAN DEUSEN & SONS,

Sole Manufacturers. 5tfd
Sprout Brook, Montgomery Co., N. Y.
Please mention this paper.

BEE-KEEPERS' SUPPLIES.

We manufacture all kinds of bee-keepers' supplies and novelties, for wholesale and retail trade.

Best Goods at Lowest Prices.

Send for FREE illustrated catalogue for 1891.

THE BUCKEYE BEE SUPPLY CO.,
NEW CARLISLE, OHIO.

3-8db

Please mention this paper.

SYRACUSE, NEW YORK,

A DEPOT FOR THE EAST FOR ALL OF A. I. ROOT'S APIARIAN SUPPLIES.

FOUNDATION is Our Own Make.

Don't buy foundation of us, for it would please you.

F. A. SALISBURY.

In writing to advertisers please mention this paper. 4tfdb

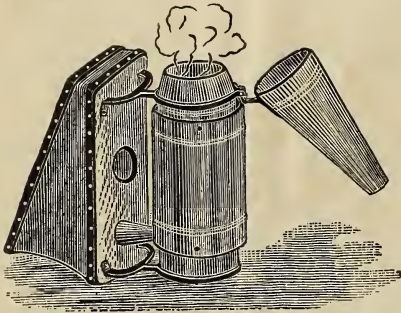
Queens Ready to Mail.

Tested Italian queen, \$2.00; 3 for \$5.00. Will mail them now and guarantee safe arrival. Untested, \$1.00; 3 for \$2.75, or \$9.00 per doz. sent after Mar. 20. Make money orders payable at Clifton. Send for price list.

COLWICK & COLWICK,

Norse, Bosque Co., Texas.

4tfdb In responding to this advertisement mention GLEANINGS.



Smokers, Foundation, and all kinds of bee-keepers' supplies furnished at lowest cash price. If you want the best Smoker in the market get one of the Quinby old reliable—made the strongest; and although the first cost is more than that of any other made, the Jumbo is the boss of all. It has been used constantly in yards for 8 years, and still it goes. Send and get price list of Smokers, Foundation, Sections, and every thing used in the apiary. Dealers should send for dealer's list on smokers.

4tfdb W. E. CLARK, ORISKANY, N. Y.

In responding to this advertisement mention GLEANINGS.

THE CANADIAN

Bee Journal **Poultry Journal**

Edited by D. A. Jones. Edited by W. C. G. Peter.

75c. Per Year.

75c. Per Year.

These are published separately, alternate weeks, and are edited by live practical men, and contributed to by the best writers. Both Journals are interesting, and are alike valuable to the expert and amateur. Sample copies free. Both Journals one year to one address \$1. Until June 1st we will send either Journal on trial trip for 6 months for 25 cts.

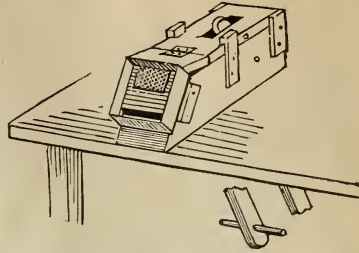
The D. A. Jones Co., Ltd., Beeton, Ont.

Please mention GLEANINGS.

JAPANESE BUCKWHEAT, $\frac{1}{2}$ bu., 50c; bu., 90c; two or more, 80c; sacks included.

4-5d W. B. COLLINS, Blackwater, Cooper Co., Mo.

The Burdsall Foundation Fastener



THE BEST MACHINE MADE.

Satisfaction guaranteed. Send for catalogue and price.

The Burdsall Apiary and Supply Factory,

4-11db

Box 744, Lebanon, Ohio.

In responding to this advertisement mention GLEANINGS.

BEE-KEEPERS' SUPPLIES.

GOOD AS THE BEST; CHEAP AS THE CHEAPEST.

Send for my new Price List of Hives, Sections, Foundation, Queens, etc., etc. We are prepared to fill your orders at once, and guarantee satisfaction. Will pay 23c cash, or 25c in trade, for fair average BEESWAX, delivered here.

3-8db

A. A. WEAVER, Warrensburg, Johnson Co., Mo.

In responding to this advertisement mention GLEANINGS.

75 Fine Tested Italian and Albino

* * *

Queens For Sale at \$1.75 Each.

Select tested golden Italian queens, \$2.50 each. Select tested Albinos, \$2.00 each. First come first served. Untested by April 15, \$1.00 each, or 6 for \$5.00, or 12 for \$9.00. Orders booked now, and pay for queens when received. I guarantee safe delivery and satisfaction on every queen by mail. Thanks for last year's patronage.

4-8db

J. W. TAYLOR, Ozan, Ark.

In responding to this advertisement mention GLEANINGS.

BEE-KEEPERS

Send for my illustrated Catalogue of Bee-Keepers' Supplies. Prices reasonable.

F. W. LAMM,

Box 106,

Somerville, Butler Co., O.

3-8db

Please mention this paper.

UTILITY BEE-HIVE.

Unexcelled for SIMPLICITY, CONVENIENCE, and CHEAPNESS. Every part perfectly

Interchangeable, Reversible, and Invertible, adapted to interchange with Simplicity, and other frames and bodies.

3d For introductory prices, circulars, etc., address

LOWRY JOHNSON,

MASONTOWN, FAYETTE CO., PA.

3tfdb

Please mention this paper.

ATTENTION, CALIFORNIANS!

I have for sale 16000 1-lb. V-groove one-piece white basswood sections, $1\frac{1}{2}$ wide, made by A. I. Root. Price \$5.00 per M., put on cars at King City, Monterey Co., Cal. For 5000 or more, write for special prices to

C. K. ERCANBRACK, JUN.,

Lonoak, Monterey Co., Cal.

In responding to this advertisement mention GLEANINGS.

STRAWBERRY GROWING a certainty and a pleasure, by growing the "Enhance." Fully tested; succeeds everywhere. Most reliable, firm, largest shipping and all-purpose berry extant. Send for description and price. You will want it.

4-5d

HENRY YOUNG, Ada, Ohio.

DR. TINKER'S SPECIALTIES!

The Nonpareil Bee-hive and Winter case, White Poplar Sections, Wood-zinc Queen-Excluders, and the finest and best Perforated Zinc now made.

Send for catalogue of prices, and inclose 25 cts. for the new book, **Bee-keeping for Profit.**

Address **DR. G. L. TINKER,**
217fdb New Philadelphia, O.

☞ In responding to this advertisement mention GLEANINGS.

Job Lot of Wire Netting.

CUT PIECES AT A LOWER PRICE THAN FULL ROLLS.

Having bought from the factory, at our own price, five or six hundred remnants, as listed below, we are able to give you the choice of a great variety of pieces at the price of a full roll or lower. Full rolls of netting are 150 ft. long, and when they are cut we have to charge nearly double the full-roll rate, because it is so much trouble to unroll, measure, and cut, and run the risk of having a lot of remnants on hand. No doubt it is in this way that the following remnants have accumulated. It costs a good deal to get all this in shape so we can easily pick out from the lot the piece you want. But to move it off quickly, we put the price down so you can all have a chance at it. Remember, first come, first served. In ordering, therefore, name a second or third choice, or say that we may send the nearest we can if the piece selected is gone. On 5 pieces deduct 5 per cent, on 10 pieces 10 per cent. These remnants are shipped only from here. If any of you want to secure some, and don't want them shipped till later, when you will order something else, so as to save freight, pick out the pieces you want, send remittance with the order, with request to lay by till called for, and we will mark them as belonging to you. We prefer to ship them right out, however.

LIST OF POULTRY-NETTING REMNANTS.

Width in in's.	Size of Mesh.	No. of Wire.	Cts. p' Sq. Ft.	Length of each piece. Multiply by the width in feet to get the number of square feet in each piece. Then multiply by the price per foot for the price per piece.
12	2	20	5	18 in., 50; 72 in., 95. 27.
48	2	20	5	49, 25, 25, 6; 60 in., 47, 42, 32, 24.
42	2	19	5	50.
60	2	19	5	42, 38, 32, 11.
72	2	19	5	134, 108, 103, 103, 100, 94, 88, 81, 73, 68, 67, 60, 50, 50, 48, 26, 25, 24, 20, 19.
24	2	18	1	22, 15.
36	2	18	1	122, 30 inches wide, 63, 25.
48	2	18	1	100; 42 inches wide, 60.
72	2	18	1	61, 53, 48, 47, 37, 35, 22, 22; 60 in. wide, 67, 20.
36	2	17	1	42, 23, 15; 24 in. wide, 77.
48	2	17	1	78, 53, 32; 60 in. wide, 25.
12	2	16	1	59, 11; 18 in. wide, 72, 72, 40; 24 in. wide, 94, 88.
36	2	16	1	36, 34, 32, 23, 14; 30 in. wide, 46, 44, 24.
72	2	16	1	69, 58, 56; 48 in. wide, 70, 48, 46, 40, 26, 19; 60 in., 62.
12	2	15	2	87, 61, 30; 12 in. wide, 100.
24	2	15	2	120, 100, 90, 69, 52, 33, 33, 13, 12.
36	2	15	2	127, 21, 6; 60 in. wide, 21, 20.
48	2	15	2	17, 13, 7, 7, 6, 5.
42	2	15	4	121, 35, 26, 23, 30, 8; 72 in. wide, 36, 33, 9.
48	2	15	2	72, 49, 48, 45, 38, 37, 30, 29, 26, 25, 14.
36	2	14	3	39; 42 in., 71.
24	1 1/2	20	1	39; 18 in. wide, 14; 30 in., 14.
42	1 1/2	19	1	33, 59.
39	1 1/2	19	1	34, 38, 26 in. wide, 47, 47, 45.
48	1 1/2	19	1	56; 72 in., 64, 63, 10.
18	1 1/2	18	1 1/2	40.
48	1 1/2	18	1 1/2	60 in., 65, 34, 19; 54 in., 12.
39	1 1/2	16	2 1/2	79; 36 in., 14, 7; 42 in., 34; 48 in., 92.
36	1 1/2	20	1 1/2	22.
36	1 1/2	19	2	48, 12, 10; 24 in., 86, 42; 30 in., 75; 48 in., 78.
39	1 1/2	18	2	15, 11, 10; 37 in., 6; 42 in., 80; 48 in., 22; 72 in., 8.
48	1	20	1 1/2	53; 72 in., 51; 30 in., 96; 9 in., 40.
24	1	19	2	26; 9 in., 24; 42 in., 50, 34; 48 in., 100, 40, 25; 60 in., 25; 18 in., 82, 50.
32	1	18	2 1/2	83, 3; 9 in., 3; 10 in., 20; 24 in., 23; 39 in., 69, 51.
36	1	18	2 1/2	37; 48 in., 30; 60 in., 59.
9	1	19	3	33, 7; 36 in., 75, 55.
24	3	16	1	128.
36	3	16	1	46, 19; 36 in., 56, 42 in., 14.
24	3	14	1 1/2	63; 48 in., 61.
14	4	14	3	150, 18 1/2; 48 in., 45; 72 in., 100, 70.
22	4	14	4	166, 52, 33, 23.
30	4	14	4	107, 68, 35, 17, 15, 10.
30	4	14	4	52, 47, 36, 33, 30, 29, 18, 13, 9.
34	4	14	4	43, 37, 34, 25, 24, 23, 18.
42	4	14	5	144, 117, 68, 62, 60, 23, 22, 22, 15, 12, 12, 12, 8, 6.
46	4	14	5 1/2	82, 50, 44, 11, 5.
18	8	13	2	68 ft.; 36 in., 200 ft. at 4c; 45 in., 247 ft. at 5c.

Four and eight inch fencing. Price in fourth column is the price per foot in length.

A. I. ROOT, Medina, O.

DON'T FORGET

To send for my descriptive catalogue of

ALBINO BEES.
A. L. KILDOW, - - Sheffield, Ill.

Please mention this paper.

4-5db

EGGS! Brown Leghorn, White Leghorn, \$1.25. Black Minorca, Plymouth Rock, Pekin Duck, \$1.50. Light Brahma, Langshan, Game, \$2 per 13 eggs. Strictly pure-bred. Ship safely anywhere. Illustrated circular free. **GEER BROS.,** 1tfdb St. Marys, Mo.

☞ In responding to this advertisement mention GLEANINGS.

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HONEY - EXTRACTOR,
SQUARE GLASS HONEY-JARS,
TIN BUCKETS, BEE-HIVES, HONEY-SECTIONS, &c., &c.
PERFECTION COLD-BLAST SMOKERS.

Apply to **CHAS. F. MUTH & SON,**
Cincinnati, Ohio.

P. S.—Send 10-cent stamp for "Practical Hints to Bee-keepers." ☞ Mention Gleanings. 1tfdb

SECTIONS.

\$2.50 to \$3.50 per M. Bee-Hives and Fixtures cheap. **NOVELTY CO.,**

6tfdb Rock Falls, Illinois.
Please mention this paper.

FOR SALE. The walls and water power of an abandoned gristmill, 10 acres land in a good location for a bee-supply business. No factory near, and large apiaries in every direction, or will take partner. Address **GEO. W. RANDALL,** 4-5d Big Rock, Iowa.

FOR SALE. Three or four S. C. B. Leghorn cockerels, as good stock as can be found in the world. Come and see them. Write for prices with your address on postal, and you will receive by return mail my new descriptive circular, free. 4-5-6d **ROBT. C. SMITH, Swissvale, Pa.**

FOR SALE. Black Minorcas and Pekin duck eggs. \$1.00 per 13. Bear-paw corn, 75c peck, \$2.75 per bush. **J. V. HURLESS, Archer, Harrison Co., O.**

Wire Cloth.

For door and window screens, tacking over hives and nuclei for shipping, making bee and queen cages, and a variety of purposes. We have the following list of green and black wire cloth which is not exactly first class, but is practically as good for the purposes mentioned, and at prices much below the ordinary price. You can no doubt select from this list a piece to suit your needs. Price in full prices, 1 1/2 cts. per square foot. When we have to cut it, 2 cts. In case the piece you order may have been taken by some one else before your order comes, please say whether we shall send the nearest in size, or cut one the size ordered at 2 cts. per ft., or give a second or third choice.

No. of Rolls, and Color.	Width, in's.	Length, Ft.	Sq. Feet.	Price of a Full Roll.	Pieces less than 100 ft. long. These figures are the number of square feet in each piece. Multiply by 1 1/2 cents for the price of piece.
10 green	8	100	67	\$1.17	63, 64, 63, 63, 62, 33
25 green	12	100	100	1.75	
2 green	16	100	133	2.33	
1 black	32	71	228	2.24	110 sq. ft., black; price \$1.92
5 green	24	100	200	3.50	140 8 green; 200 black.
33 green	26	100	217	3.50	This is below reg. pr. of 1 1/2 c.
14 green	28	100	233	4.08	224, 224, green.
6 green	32	100	267	4.67	
10 green	34	100	300	5.25	300, black; price \$5.25
6 black	38	100	317	5.54	269, black; price \$4.70
5 green	38	100	317	5.54	258, black; price \$4.50
3 black	40	100	333	5.83	317, black; price \$5.54
8 black	42	100	350	6.12	350, green; price \$6.12
1 green	44	100	367	6.42	

A. I. ROOT, Medina, Ohio.

HONEY COLUMN.

CITY MARKETS.

ALBANY.—*Honey.*—The demand for comb honey is more liberal since the Lenten season began, but there is no change in prices. We have had one consignment of 40 cases of comb honey and 30 packages of extracted since last report. No change in prices of extracted. We quote clover, 16@18c; mixed, 14@15c; buckwheat, 12@13. Extracted, light, 8@9; dark, 7@8.
Feb. 20. CHAS. McCULLOCH & Co., Albany, N. Y.

CINCINNATI.—*Honey.*—Demand is good for all kinds of honey, with a good supply on the market of all but Southern honey, which is scarce. Choice comb honey brings 16@17c a lb. in the jobbing way. Extracted honey, 6@8c a lb. on arrival. *Beeswax.*—There is a good demand for beeswax at 24@26c a lb. for good to choice yellow on arrival.
Feb. 20. CHAS. F. MUTH & SON, Cincinnati, O.

ST. LOUIS.—*Honey.*—Mild weather has affected trade so that there is scarcely any demand for either comb or extracted. We quote white-clover comb at 16c; dark, 13@14. Extracted, 6@6½ in bbls.; cases, 6½@7½. *Beeswax*, 26½.
Feb. 19. D. G. TUTT GRO. Co., St. Louis, Mo.

SAN FRANCISCO.—*Honey.*—Extracted honey is firmer, and several carloads have been sold East at 6¼@6½c, f. o. b. Comb honey very scarce, and to be had only in small lots. We quote 10@14c, as to quality. *Beeswax* in good demand at 24@25c, f. o. b.
Feb. 14. SCHACHT, LEMCKE & STEINER, San Francisco, Cal.

NEW YORK.—*Honey.*—We quote extracted California honey, light amber and white, at from 7@7½c. Florida honey in barrels at 7@8c. *Beeswax*, nice yellow Cuban, 23½c; Southern, 20½c; selected California, 31c.
Feb. 20. F. G. STROHMAYER & Co., New York City.

DETROIT.—*Honey.*—The market for honey is not very brisk. Comb honey is selling at 14@15c. Extracted, 7@8c. *Beeswax* firm at 27@28c.
Bell Branch, Mich., Feb. 19. M. H. HUNT.

KANSAS CITY.—*Honey.*—We have a steady demand for comb honey in 1-lb. sections, and if receipts continue light our market will soon be cleaned up. We quote white 1-lb. comb 16@18; California 2-lb. comb and extracted slow sale. We quote 2-lb. comb, white, 14@15; dark, 12@13. Extracted, 6@7. *Beeswax*, 25c.
Feb. 24. CLEMONS, MASON & Co., Kansas City, Mo.

ST. LOUIS.—*Honey.*—The season for the sale of comb honey is well advanced, and the demand is rather light. Choice white clover, 14@15c. Extracted, in cans, choice white clover, 7½@8c. Lower grades in both comb and extracted, lower as to quality. *Beeswax*, prime, 26c.
Feb. 13. W. B. WESTCOTT & Co., St. Louis, Mo.

FOR SALE.—2000 lbs. clover honey, in 15-gallon kegs, at 9 cts. a lb. by the keg, tare out.
MONT WYRICK, Cascade, Ia.

FOR SALE.—Extracted honey, in 70-lb. tin cans, at 10 cts. per lb., f. o. b.
4d. LEWIS HAINES, Moons, Fay, Co., O.

FOR SALE.—1200 lbs. extracted white-clover honey in barrels or 60-lb. cans, as desired.
11fdb. E. J. BAXTER, Nauvoo, Ill.

FOR SALE.—Choice honey in sections, cans, and C. pails. Send for price list to
12-tfdb. OLIVER FOSTER, Mt. Vernon, Ia.

The Greatest Invention of the Age!

BEES MADE TO LIVE THEMSELVES.

Full particulars free. Address

5-tfdb

H. ALLEY, Wenham, Mass.

Please mention this paper.

BEESWAX

FOR SALE.—Crude and refined. We have constantly in stock large quantities of Beeswax, and supply the prominent manufacturers of comb foundation throughout the country. We guarantee every pound of Beeswax purchased from us absolutely pure. Write for our prices, stating quantity wanted.

ECKERMANN & WILL,

Bleachers, Refiners, and Importers of Beeswax,

5-16db

Syracuse, N. Y.

In responding to this advertisement mention GLEANINGS.

TAKE NOTICE.

Our New Factory is Now Open

To receive orders for **Bee-Hives, Frames** of all kinds, **Shipping - Crates, Sections, Honey - Cans, Comb Foundation**, and **Smokers**. Write for price list to

GREGORY BROS. & SON,

Ottumwa, Wapello Co., Iowa.

5-tfdb

In responding to this advertisement mention GLEANINGS.

Bees & Supplies for Iowa.

Send for my supplement for 1891, now ready (no new catalogue). Say whether you have my catalogue dated 1889 and 1890. Address **Oliver Foster**,

5-trdb

Mt. Vernon, Linn Co., Iowa.

3-4d

Please mention this paper.

HAVE YOU READ MY

Ad. on **Inside Back Cover** of Gleanings, Feb. 1st? Also my ad. on **Page 117**, Feb. 15th **Gleanings**, about my **New Potatoes!** If not, do so at once. W. Z. Hutchinson, on page 45 of the Feb. **Review**, says, "They would almost pass for a **Sweet Potato.**" If you intend to try them it is necessary for you to **order soon**, as they would not go half way round to the readers of Gleanings. Potatoes will be sent the first week in April. Safe arrival guaranteed.
5tdb

Jacob T. Timpe, Grand Ledge, Mich.

In responding to this advertisement mention GLEANINGS.

HO FOR CALIFORNIA!

FOR SALE. 100 Colonies of Bees. Full colonies, \$3.50. Stanley Extractors, Vanderwort Mill, and other fixtures. Send for descriptive price list and realize the bargains. Address

J. H. MARTIN,

Hartford, Wash. Co., N. Y.

HO FOR CALIFORNIA!

1tdb

Please mention this paper.

NEW AUTOMATIC ZINC PERFORATOR.

I am now able to supply zinc with the round-end perforations in 16 styles of opposite and alternate perforating. The new machine makes any size of sheet, with a border of any width from 2x5 inches up to 24x44. The work done has

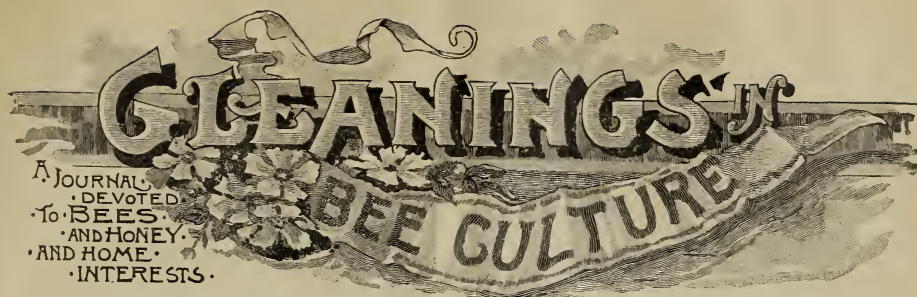
NEVER BEEN EQUALED.

is uniform, exact, and perfectly reliable. Prices very low. Send stamp for samples. Address

DR. G. L. TINKER, New Philadelphia, O.

5td

Please mention this paper.



Published by A. I. Root, Medina, O.

Vol. XIX.

MAR. 1, 1891.

No. 5.

STRAY STRAWS

FROM DR. C. C. MILLER.

THE STING-TROWEL theory has gone into hibernation.

THE OLD OFFICERS of the Bee-keepers' Union are re-elected.

DIVIDED TOP-BARS are being repeatedly invented nowadays.

OUTDOOR WINTERING had a majority of votes at the Ontario bee-keepers' convention.

REDUCED FARE is a thing of first importance in fixing time and place of conventions.

WHERE ARE the one or two government stations that Prof. Cook speaks of as doing something with bees?

MR. G. DeLAYEN's plan for an out-apiary is to have very large hives, and visit them only twice a year, spring and autumn.

WILL E. E. HASTY please tell us whether he succeeded in getting an improved breed of red clover? Hasty is the man to do it if any one can.

THE ONTARIO BEE-KEEPERS' ASSOCIATION reports 323 members for last year. Can you beat that on this side of the line, you bragging Yankees?

ARTIFICIAL HEAT in cellars is bad—costs too much. Artificial cold (or natural either) is still worse. If cellars get too cold, choose the least of two evils.

CARBOLIC ACID used for quieting bees, says the *B. B. J.*, was credited by the late Rev. George Raynor as the chief cause of his immunity from foul brood.

"NUMBER TWO," in *C. B. J.*, thinks I'm afflicted with *versatility*. That's not what ails me. "Number Two." It's the grippe that's got it—got its—grip on me.

LARGER BEES are advocated in the *Apt.*, in the belief that doubling the size of the bee will double the distance it will travel. Does a crow fly any further or faster than a blackbird?

THE BRITISH BEE JOURNAL is publishing a series of "Bee-papers for Winter Reading." If the first number is a fair sample, the series will be valuable. In effect it will be a practical treatise on bee-keeping.

E. R. R. ASKS ME, on page 87, whether I would "preach bee legislation, priority claim of locality, or move out," if bee-keepers were too thick around me. I wouldn't do either. I'd shut my teeth tight together, and wish for the day to hasten when bee-keepers would have the same chance as farmers.

PROF. COOK found that bees fed on pure honey, or honey and syrup, half and half, lived five times as long as bees fed on Good candy made from coarse granulated sugar. Powdered sugar is the thing for Good candy.

HEATING BEES in winter is discouraged by the *B. B. J.* Undoubtedly right where zero weather is never known. But where for days it keeps some 50° below freezing, give me a steady coal fire, if my cellar is not warm enough.

A COLD DAY, E. R. R. says, makes it all right to carry in bees without bottom-boards. Yes, I know, if it's cold enough. But I want mine in the cellar before it is cold enough. So I prefer to carry in the deep space with my hives.

AN EGG of a queen is $\frac{1}{4}$ of an inch in length and $\frac{1}{10}$ of an inch in thickness. If a queen lays 3000 in 24 hours, and they are laid in a row, end to end, it will make a string about 18 feet long. Even if she didn't lay them in just that length of time, I suppose they would measure the same.

SECTIONS BY WEIGHT is the safe way. I'm beginning to favor less than a pound section; for if all are less than a pound, the public will soon learn it, and then there can be no cheating by selling light weight. The weight is too uneven to make selling by the piece always best.

LOOSE OUTSIDE CASES over hives are nothing new, according to the *B. B. J.*, and it pokes fun at us for thinking they are. It says, "We trust they will give such hives a fair trial, and that they will also find them as advantageous as we have done for the last fifteen years or more back."

HONEY, according to Prof. Cook, is digested, ready for absorption, making it a safer food for man than cane sugar, and a safer food for bees in confinement. Practice doesn't always confirm this, but there may be something wrong in the practice. It's hardly right to give the name of honey to some of the thin sour stuff that goes under that name.

A STANDARD TEMPERATURE for cellars, I'm afraid, is a bad thing. If you say 40°, some beginner will freeze his bees. If you say 45°, another will roast his. Cellars differ. Thermometers differ. Each one must find out for himself what's best for him. Better tell the beginner, "There is no standard. Hunt for a quiet spot somewhere between 37 and 50."

THE NAMELESS DISEASE is agreed to be cured by changing the queen. I'd like to see some of the "ample evidence" of it. "A number of cases and all recovered after changing the queen?" I can give just as strong proof that red paint on my shop has cured the numerous cases that I have had. I don't say changing the queen never cured a case, but I never saw satisfactory evidence of it. Mine always got well without it.

"MAKE YOUR HIVES and appliances by all means if you can, but draw the line at frames and sections. Buy them and save money, time, and temper, and secure efficiency by so doing." So says the *B. B. J.* Good advice, only I'd put "hives and appliances" on the same side of the line as frames and sections, in most cases. I'm satisfied with putting together and nailing.

FOUL BROOD can be cured by using *naphthol beta*, so says Dr. Lortet in the *Revue Internationale*. The *B. B. J.* gives a translation of his article, and speaks approvingly of the remedy, which, it says, is perfectly harmless. Dr. Lortet says, "It is the adult bee which is first infected." "Contaminated honey may be a cause of the propagation." Cheshire denies the latter.

"THE HONEY-BEE: ITS NATURAL HISTORY, ANATOMY, AND PHYSIOLOGY," Mr. Cowan's new book, is just the thing for some of you beginners to read up on, who want to be in the front ranks. It's so nicely gotten up that it is a pleasure to leaf it over. I haven't had time to read it yet; but from what I know of its author I am safe in saying it is entirely accurate, and up with the times.

THE DEPOSIT SYSTEM is an English kink. The *B. B. J.* says, "When strangers are dealing together, the purchase money of the articles is deposited at our office. We acknowledge the receipt of the deposit to both parties, and hold the money until we are satisfied that the purchase has been concluded." A small fee is charged. Why wouldn't that be a good thing to copy in this country?

GENERAL CORRESPONDENCE.

BEE-ESCAPES.

EXPERIMENTING WITH DIFFERENT FORMS: HOW MR. DIBBERN CAME TO DISCOVER THE HORIZONTAL STYLE.

During the 25 years that I have kept bees it has been a constant problem with me how best to get rid of the bees in the surplus boxes. I tried about all the different methods suggested in all that time, but all proved more or less unsatisfactory. But, let us try, and investigate, to see, if we can, where and what the difficulty to be overcome really was, for the thing is accomplished.

When I commenced bee-keeping we had no bee-papers—at least I knew of none—and the only guide I had was *Quinby*. He recommended leaving the surplus boxes out over night, about six inches in front of the hives, and placing a few sticks so the bees could run over the bridge to their hives. Sometimes this worked all right, but often the honey would be covered with bees the next morning, ready to go for any one coming to get it. Then, too, should a shower come up during the night, the honey would be damaged. It would also be a "shining mark" for nocturnal prowlers; and should it chance to be forgotten, or left out too long in the morning, what a picnic there would be!

The next plan suggested was to get several large store boxes and pile the surplus boxes in, bees and all, and cover over with a sheet, occasionally turning the sheet and liberating the bees. In that way very many young bees would be lost, never having marked their hives; and it was a slow and tedious way at best. It was also necessary to keep a constant watch, as a gust of wind might blow the sheet off at any time, and make lively times among the bees.

When I began to use sections and cases, I adopted the Heddon plan, smoking out all the bees I could, and carrying the rest into the honey-house, allowing them to escape at the top of the windows by having the wire screen extend some six inches higher than the windows. The objection to this plan was, that bees would be "bumming around" the room all day; and if any extracting was to be done they would be getting into the honey, and be a constant annoyance. One day I carried in a good many bees; and as it was almost unendurable to work in the honey-house, I went away a while doing other work. When I returned, there was "music in the air;" and I noticed about a quart of bees clustering at the top of one of the escapes at the window, and bees *did find their way back* into the room, and were actually carrying off the honey. This plan is also open to the objection that young bees will become lost, and it is a nuisance in every way. How strange that some of our *boss* bee-men, even editors of apicultural papers, should still cling to such methods!

Well, the next thing that seemed to offer a solution to this problem was the tent escape. This I used by piling up eight or ten cases, and placing a wire-cloth escape, fashioned like a house-roof, with an opening at the apex, on top. When I succeeded in smoking out most of the bees, it would generally clear out nearly all by evening; but often the bees would all cluster in one case, where it became difficult to get rid of them, and many young bees would get lost. When many bees were left in the cases they would often cluster at the top of the escape, and they then seemed to have no difficulty in finding their way back, carrying off the honey, and attracting other robbers.

About this time my attention was called to the Reese escape, and I was very favorably impressed with it. When a hive was not very strong with bees, it generally worked very well; but in removing cases from strong colonies, when no more empty cases were needed, the bees would often fill the entire space under the escape-board, and build comb there. They would also sometimes cluster on the wire-cloth cones, and open up communication between the case to be removed and the hive below. I was not long in deciding, that, to make a perfect escape, we should somehow have to get along with only bee-spaces. I then constructed a wooden rim $\frac{3}{4}$ inch thick, tacking wire cloth on both sides, allowing the bees to escape between the cloth through a series of V-shaped escapes. I tested this to some extent in the fall, and it worked well. I believe this was the first horizontal bee-escape ever tested, and I have it as a relic yet.

Well, this idea opened up a whole multitude of bee-escapes. I soon saw that this original was larger and more expensive than need be, and soon boiled it down into my pear-shaped escape. This is really a very good form, and, if rightly made, will generally prove satisfactory. After I had published my invention of the horizontal bee-escape, a multitude of similar escapes at once sprang into existence. Thinking that perhaps I had not yet found the best plan on which to make the escape, I studied various designs, and finally adopted a four-pointed star, with openings for the escape of the bees at the points. I concluded that, as there were four outlets, it would greatly increase the capacity. It was also made removable, which I consider an important feature. The four large openings, however, proved a mistake, as I found that, in warm weather, the bees had no great difficulty in finding their way back through it. This is really the great danger to be overcome to make escapes perfectly successful. By close

watching I found the bees would cluster on the cones, filling them full of bees, and seemed to be able to communicate to other bees the way through the escapes. After satisfying myself where the difficulty lay, I at once commenced experimenting to overcome it. I soon decided that the escape must be so made that bees could not readily cluster on it.

Remembering my original board, I again commenced with a board the full size of the hive, first making a bee-space between two thin boards, and making a series of runways and stops in it. I found it to work all right. I then began reducing the size of the escape, and kept testing them all the time by removing partly filled supers and putting them on again. I finally adopted a size $4\frac{1}{2} \times 6\frac{1}{2}$, beyond which I could not well reduce it, and made it removable. I experimented a good deal with them and took off all my cases, some 300. I also sent out more than 200 to other bee-keepers, and did not hear of a failure. Mine could not have worked better, and I do not see that any thing better can be desired. The idea that bees uncapped any honey before leaving the surplus case is unfounded. They sometimes do, when they can go back through the escape, and will carry honey down if they have time enough. It is practically impossible for bees to return and open up a highway through my new escape. Several bee-keepers have lately reported using my escape with unsatisfactory results. I have investigated all that have come to my attention, and invariably found it was the old four-point escape that made the trouble.

THE HORIZONTAL BEE-ESCAPE.

This has come to stay; and if we have not yet obtained the best form, it will soon be here. I want to say right here, that "the war" as to the rightful inventor is over, and it is free to all. Many other bee-keepers have brought out horizontal escapes that are ingenious, and will probably work all right. Some that I tested proved failures; but that was to be expected. I am sure we have got something that will be appreciated more and more as the years roll on. Even some of our great bee-men and eastern bee-editors will have to "acknowledge the corn" after a while. I know the horizontal escape is a good thing, and can abide my time.

Milan, Ill.

C. H. DIBBERN.

[The star-shaped horizontal did not work very satisfactorily in our yard; but your original pear-shaped escape works well.]

SHADE FOR HIVES.

HOW THEY PROVIDE FOR IT IN CALIFORNIA.

In foot-notes to Miss Wilson's article in Jan. 1st GLEANINGS you invite a discussion as to whether it is best to have our hives under shade-trees or not. It is a matter I have been giving some thought to of late, and I hope to see it thoroughly discussed.

In California I have never seen an apiary located under trees, though a good many use shade-boards, keeping them in place by laying on them a heavy rock. This method is objectionable, as it necessitates much extra and fatiguing work, and affords no shelter from the sun's rays to the apiarist. Permanent sheds are much better. One 5 feet high in the front, 4 feet at the rear (which should be to the south), 3 feet wide, and 75 feet long, can be built for \$5.50, reckoning lumber at 3 cents a foot and shakes at \$14 per thousand, allowing 50 cents for the nails, and charging nothing for putting it up, the roof to be one layer of shakes. This makes enough shade, but does not shed rain.

By moving the hive to the southern side of the shed in the spring, they will get the desired sunshine. In summer, place them to the north side, and they will be in the shade all day. Under sheds, however, in order to economize, we are apt to put our hives nearer together than is good.

PECAN-TREES FOR SHADE IN THE SOUTH.

In Louisiana I once kept bees beneath a grove of pecan-trees. They make a dense shade, with branches high above the apiarist's head. For that climate nothing can be better. In California the difference in temperature in shade and sun seems to me to be much greater than in the East; and it is probable that, some days in the spring, stocks in the shade would be kept so cool as to do much less work than those in the sun.

The peach is a nice tree to plant in the apiary. It grows rapidly, and makes a shade of just about the right density. Some varieties are later in putting out leaves in the spring than others. These are the best to plant, as at that time of year the hives should have all the sunshine possible. In California, French prunes might be better than peach-trees. They are of slower growth than the peach, but more profitable when it comes in bearing. This tree has been termed the lazy man's tree, as its fruit, instead of rotting when not gathered, will dry into a marketable commodity.

Build your honey-house in the center of a two-acre orchard. Put two hives under each tree, and it will be about right for a 400-hive apiary. Scattered over so large a space, young queens will have no difficulty in locating their own home, and I believe that, in that respect alone, it will more than repay for the extra travel necessary where hives are so scattered.

One very great advantage, where hives are scattered among trees, is the lessened liability of swarms uniting, which issue at the same time. Last year, in my apiary (located on an open plat), I had 16 swarms unite, making a cluster as large as the body of a good-sized horse. Many other times I had from two to six unite. The consequence was, that a majority of my queens were killed at a time when the eggs laid would have produced workers for the main honey-harvest.

The trees should be trimmed high, both to get the branches out of the apiarist's way and permit a free circulation of air. A neighboring bee-keeper told me quite recently that his hives in the shade melted down worse than those in the sun. He had set them in some low brush, which grew thick from the ground up.

Where, from preference or necessity, hives are to be placed near each other, if the ground be planted out to a variety of trees it will better enable the bees from the different hives to identify their own home. In my apiary I am planting grapes, apples, peaches, prunes, walnuts, pears, and figs. With the exception of apples and pears, no two trees look alike.

A year ago I purchased some 300 enameled-cloth quilts for my hives. While they are good for preventing the escape of warmth from the hive, I believe those quilts have been the cause of more profanity in my apiary than the 400 stocks of hybrids, though each of which (last summer at any rate) seemed possessed of the diabolism of a thousand demons. If any wind is blowing it is almost impossible to keep the quilt spread out smooth while one puts on the top. I have often had it go sailing off ten feet or more, just as I was closing the hive. I have thought of tacking them to the cover. A much better quilt is a piece of canvas well daubed with thick paint. Its weight being great, the wind does not bother much. Wm. G. HEWES.

Newhall, Cal., Jan. 13.

OUTSIDE CASES FOR WINTER.

SUCCESSFULLY USED BY J. A. GREEN.

From the references that have appeared in GLEANINGS lately in regard to outside shells for packing bees that are to be wintered on their summer stands, the novice would almost be led to think that it is a new and untried device. I have used such packing-cases for four years; and at present I have over a hundred colonies protected in this way. In fact, with the exception of a few in your chaff hives, every colony that I am wintering out of doors is snugly packed in leaves or shavings held in place by an outer case. Besides this, there is a great stack of them waiting to be put over the bees now in the cellar when they are brought outdoors.

"What," you say, "do you go to the trouble

pieces should be nailed to the flat side of the uprights, and two or three left off at one end for the entrance. Now put a "bridge" over the entrance, set the packing-case over the hive so that the front rests on the bridge, holding it firmly in place, and put in your packing material. This may be whatever is convenient. I generally use leaves. Soft leaves, such as those of the soft maple, are excellent. Planer shavings or sawdust are more easily handled, and better.

We now want a roof over it. Above all other qualities it must be water-tight. Wet packing is worse than none at all. I have given considerable thought to the matter of making a roof that would be cheap, durable, and effective. All these qualities are hard to combine. A very good and cheap roof may be made by nailing barrel-staves crosswise to a three-inch strip a little longer than the packing-case, putting



J. A. GREEN'S APIARY IN WINTER, SHOWING OUTSIDE PACKING-CASES.

of packing bees that have passed through the winter safely in the cellar?" Yes, that is just what I am going to do. I believe that it pays to protect bees, and I think there is no time when they need protection more than in the spring, when we want them to rear as much brood as possible. Thin-walled hives are too easily affected by changes of temperature at this time, and brood-rearing suffers in consequence.

To make my packing-cases I use ordinary lath cut into two pieces, 20 and 28 inches long. These are nailed to three-inch corner strips to form the ends and sides of a box without top or bottom. It is made of such height that, when set over the hive on its stand, the outer case resting directly on the ground, it will be five or six inches higher than the hive. The end

over them a sheet of roofing-paper, then nailing on another layer of staves so as to break joints with the first ones. The most satisfactory covering, though, and the best, all things considered, is a sheet of corrugated iron, large enough to cover the whole. An ordinary sheet (96 in. long) makes three pieces just right. Nothing further is required. Just lay the sheet of iron on top, and lay a stone on it to keep it from blowing away; or, better, lay a short piece of board across the top, and the stone on that. This makes a roof that can not leak; and with ordinary care it is practically indestructible. With a coat of paint occasionally, it will last as long as the owner. When not in use they can be stored in a very small space, as they nest into one another. They make the best of shade-boards for summer, if

any are desired. Cut the corners off rounding, so clothing will not get torn on them.

These corrugated iron covers cost me a trifle less than 20 cents each. A bunch of lath, costing 15 cents or less, will make two packing-cases. I think these are practically as good as if made of more expensive lumber. If you desire, you can turn them into excellent chicken-coops for summer use. If you want them more ornamental, paint them with a mixture of skim milk and hydraulic cement, or other cheap paint. Really, though, I don't think they look very bad unpainted. They ought to be of a dark color, so as to absorb as much of the sun's heat as possible whenever it shines. This helps brood-rearing in the spring wonderfully. One of the principal arguments in favor of unpainted hives is, that bees build up in them better in the spring. I think this is mostly due to the dark color. With a dark outer case you have all this advantage, and more, as the packing retains the heat.

I inclose a photo showing how the hives look, packed as I have described.

I have given up the coal-mine where I wintered them for the past two winters, as it was too hard to get at it.

My apiary is just on the edge of a bluff. There is a stream in the valley—Fox River—running south.
J. A. GREEN.

Dayton, Ill.

[I think you are mistaken. I did not mean to convey the impression that outside winter cases were new; on the contrary, all along I have assumed that they were old. What I desired to know was, how many bee-keepers were using a similar arrangement *now*, and, more particularly, how the so-called dead-air space compared with packing.

With your corrugated covers I should think the snow would beat in under and so dampen the packing; and there is that 10-lb. stone and board—doesn't that make a good deal of rigging? The outside packing-case that I described on page 698 last year was to cost only 35 cents, and, besides, it would be much neater. If painted muslin or roofing-paper will answer in place of tin, the cost will not be more than yours.]
E. R. R.

SOMETHING ABOUT BEES AND BEE-CELLARS.

DOOLITTLE CONTINUES THE SUBJECT.

A correspondent writes thus:

My bees seem to be wintering poorly on their summer stands, and I have resolved to build me a bee-cellar. How should it be built? how ventilated? what is the right temperature to keep it while the bees are in it? at what time of the year should they be put in and taken out? I know you have told us considerable about bee-cellar, and I know that an article on this will be a little unseasonable; but will you not be so kind as to give us some of the small points necessary along this line, and tell us about it soon, as I wish to build mine right after spring work, so it may get all dried out and ready for the bees in the fall? Give the article in GLEANINGS, as I think it will be of interest to many besides myself.

Well, I supposed I had written about all I had to say on bee-cellar during the past; but with the editor's permission I will try again.

To my mind, it matters very little how the cellar is built providing it accomplishes the purpose for which it is intended: i. e., keeping a uniform temperature inside, no matter what are the changes outside. Of course, you will want it large enough to accommodate all the bees you will ever expect to have to put in it. If it can be built in a side hill it will better accomplish the keeping of an even temperature

than a cellar under a house can be made to, and this is the reason why I prefer the outside cellar, or cave. If your cellar under your house can be partitioned off so that the apartment for the bees need not be disturbed by the constant going after vegetables, etc., and so that an even temperature can be maintained, such a cellar is equally good with an outside cellar. The trouble with the cellar under the house lies in the fact that the cold and warm air, produced by the varying temperature of winter, passes through the floor of the rooms above, so that no even temperature can be kept below. If the space under the floor, between the sleepers, can be filled with chaff or sawdust, it will help much to obviate this trouble. If the cellar is dug in a side hill I would have it long and narrow. Mine is 24 feet long, 7 wide, 6 high, and is large enough to accommodate from 100 to 125 colonies, according as they are packed. From this you may know about the size you want. The cellar in the side hill has another advantage, in the fact that the path into it will be on a level with the ground outside, so that the hives can be set on a spring wheelbarrow and wheeled right where you wish them in the cellar. This one item alone would almost or quite pay for the outside cellar in the course of 20 years. Some seem to think that it is very important that the cellar be dry, so that no moisture nor drops of water ever collect on the walls or about the bees or cellar; but all of my experience goes to prove that, if the temperature can be kept between 40 and 45°, all the moisture that will naturally accumulate in any cellar will do no harm. My cellar is so moist that drops of water stand all about overhead and on the side walls of the room, yet the bees do not seem to be affected in the least by it. I am coming to think more and more that the matter of ventilation is non-important, as bees winter in splendid condition with no special provision being made for any ventilation. By way of explanation, I will say, that, when I built my cellar, I constructed a sub-earth ventilator 150 feet in length, in connection with a direct upward ventilator of the same size. Either of these could be controlled at will, and every change of weather found me changing these ventilators. After a little I began to leave the upper one closed all the while for a month, while the sub-earth ventilator was often closed for days together. Not seeing that it made any difference with the bees, I now left them closed all the while; and as this gave me a more even temperature in the cellar, neither ventilator was opened at all during the winter of 1889; so this fall, when I came to re-roof my cellar with flagging, I left out the upper ventilator entirely, allowing the sub-earth ventilator to remain, but it has been closed all winter so far. In this way I have no trouble with the temperature, as it will vary only from 41 to 43° degrees during the whole winter, or only two degrees. If you have a cellar in which the temperature falls lower than 40, I would put a slow fire in it, or in an anteroom just off from it, so that, when there is much severe weather, the temperature might be kept up at 43 to 45° if possible. A change of 10° in temperature is liable to make the bees uneasy, cause them to go to breeding, get the diarrhea, and spring dwindle. If the cellar is under a house, some seem to think that a small pipe from the chimney above the fire, running down to within two inches or so of the cellar bottom, to be used in a warm time, is a good thing in that it causes a change of air during a warm spell, which results in keeping the bees quiet with a much higher temperature than they would without this change of air. I am not positive on this point; but if I had a cellar that would run up

to 50 every warm spell. I would try it. With me I consider a temperature of 42° to be the best for a cellar; but I would say that the temperature which is best is the one in which the bees are the most quiet. That may not be the same with you that it is with me; therefore I would advise you to keep watch closely; and when you find where the bees are the most quiet, control the temperature *just* there as near as may be ever afterward. Bees will be quiet in a much higher temperature during November and December than they will be during March; therefore the cellar that will cool off a little as the winter advances is much the best, providing it will not rise when the weather begins to warm up in the spring. If the bees are quiet in the cellar, do not remove them till the elm and soft maple are in bloom, about April 20 in this locality. Set them in the cellar on the approach of cold weather, say Nov. 10, and you will not be far out of the way.

Borodino, N. Y., Feb. 12. G. M. DOOLITTLE.

FOUL BROOD.

HOW TO BURN THE CASES WITHOUT DANGER OF INFECTION TO THE HIVES.

I tried every remedy you told me of, but found nothing that would effect a permanent cure. I would be much encouraged after applying a remedy for awhile, but it would soon be as bad as ever. I became perfectly disgusted with the whole business, and nearly decided to quit it entirely. I then had 26 colonies, March, 1889, and 16 of them had foul brood. Some of them were so bad I could smell them 20 feet from the hive. I knew it would be only a short time before it would be in the rest. So I decided to try what virtue there was in fire. Don't laugh at me, and say, "That man Keith is foolish." I had become somewhat desperate. Every thing in the bee line was going to the dogs, so I had to try a desperate remedy. I dug a hole opposite each affected hive, a little larger than the size of the hive, about 1½ feet deep, and filled the hole half full of small split pine. Then I took three hives off the bottom-board, and placed them in the hole. I did this after sunset, and put fire in the hole, and soon the hives, bees, frames, and honey were all in flames, and they made a good fire. While I was watching them burning, my wife said it was a pity to lose the hives. It was bad enough to lose the bees, but to lose both was too bad. I agreed with her. I got my smoker and filled it up with nice dry wood, and got it in full blast, and put a handful of pulverized sulphur in the smoker, and went to the other affected hives and killed the bees with the smoke, then I put dead bees, combs, honey, and frames in the fire, and burned them up. Then I had the hives well scraped, then scalded with water, then well fumigated with sulphur; so, at my wife's suggestion, I saved 13 hives; and by the process mentioned I am entirely clear of foul brood. I have not seen the least indication of it since March, 1889. And I believe it is the only effectual way to rid an apiary of the disease. I have now 37 colonies in good condition, apparently healthy, and I hope to increase to 50; then I shall have as many as I want, and hope to make a good crop this year. Now, friend Root, if you can suggest a better remedy for foul brood, let me hear from you.

J. J. KEITH.

Louisville, Ga., Jan. 15.

[It is not necessary to kill the bees. We have cured all we had that were diseased, with the exception of a few that we at first destroyed with fire, by scalding the hive with boiling

water and putting the bees in clean hives on frames of foundation. After the bees have consumed all the honey in their sacs in comb-building, they are free from the last vestiges of foul brood. If you discover that you have one or at most two cases *at the start*, it may be advisable to burn them as you describe.]

PAINTED MUSLIN VS. TIN FOR COVERS.

SUGGESTIONS FOR THE DOVETAILED HIVE.

On page 69, muslin versus tin covers are mentioned. You are the man who advanced this idea way back in the 70's in GLEANINGS. Then as now such covers were a success with us.

A MUCH CHEAPER COVER.

Muslin on a wooden stretcher, or frame, portico like, with two coats of paint, is an excellent cover, but it will not stand hailstorms. The cover of the Dovetailed hive is just the thing for a painted muslin protection. Then the hive has the needed shade in summer, and will be water-proof.

You should make some improvements yet on the Dovetailed hive and closed-end frames. The end-pieces of the frames should be ¼ inch from the hive. The frames should not rest on the bottom-board; it will be a moth-nest if they do. Could you not send a frame-rest with each hive? This rest can be made of half-inch (½ x ½) hoop iron or steel. The main object in setting the end pieces of the frames back ¼ inch is to have a cooler hive in summer and a warmer one in winter. Queen-excluders should have quarter-inch passage-ways on the ends also, to enable the bees to ascend and descend from the super.

The other day I had a Bay State hive shipped by Mr. H. Alley. Indeed, it is a neat and superior hive. It may become a pet hive with all bee-keepers who keep bees on a small scale. For others, too many screws! I can handle all sections in a Dovetailed super before an ordinary bee-keeper will have cared for one frame in the Bay State super. It may be because I am a hard Democrat, or that the Bay State hive has too many fixings. A bottom-board should be one plane—all hills and valleys should be avoided—and I fear the Bay State hive has these uneven faults in some degree.

REV. STEPHEN STENGER.

St. Meinrad, Ind., Jan. 20, '91.

[Yes, I knew the senior Root used painted cloth years ago; but the *junior* Root wished to ascertain whether they were used anywhere with success *now*. So far the testimony for the painted muslin vs. tin has been favorable. *If* it will answer for outside winter cases to set over in lieu of tin, it will not only be much cheaper, but far better. *Tin* is too good a conductor of heat and cold; and some of our outside cases, on examination, showed early this fall that great drops of water had collected on the under side of the tin. To remedy this, I put Simplicity covers on top, and that fixed it. Well, now, painted muslin is a good *non*-conductor of heat and cold, and, if sufficiently durable, will be better than the tin. See? Both the tin and muslin will have to be painted; but the cloth holds the paint better than tin. As to expense of material, the cloth would cost about one-fifth as much as the tin, making the expense of the outside cases from 25 to 33½ per cent less. But some will say, tin will be cheaper in the long run. Very likely, for regular hive-covers; but for winter cases the cloth will be warmer. Of course, either the tin or cloth should be supported by ¾ lumber beneath.

About the bee-space between the closed ends and the hive end: The majority of bee-keepers would oppose you strongly on that point (see page 87, last issue, for a sample). The reason is this: If bees have access to both sides of the closed ends, they will gum them together that much harder. To make closed-end frames readily movable, the bees should have access to the cracks between the uprights on the *inside only*.

Your frame-rest for the bottom-board might do; but isn't it too much rigging?]

ABOUT CLOSED-END FRAMES.

IS THEIR USE IN A TIGHT-FITTING CASE, A LA HEDDON, NEW?

Near the close of the honey season of 1878 or '79, while taking sections of honey out of a super that held a single row of sections like one apartment of Moore's crate, it occurred to me that brood-frames could be constructed to fit in a hive in the same way. In a few weeks after I first thought of such a hive, I constructed one with closed-end frames, and with the ends of the frames fitting against the ends of the hive. In the fall of 1879 a hive of this kind was exhibited at the Smithfield fair: and in the next spring, about a dozen hives of that kind were made and sold. I had used closed-end frames prior to the construction of this hive, but they did not fit against the ends of the hive, and they were used for the extractor only.

Starting with one hive in 1880 I have added to the number occasionally till I have probably more than 20 of that kind in use now. I prefer that the ends of the frames shall not exceed a scant $\frac{3}{16}$ inch in thickness. That thickness is all that is required for strength; and the thinner the ends, the less trouble there is in the way of pinching bees between the edges when frames are replaced in the hive.

It is important that the frames shall have very little "end shake." When a part or all of the frames are taken out of the hive, bees will crawl up on the end of the hive; and, in replacing the frames, if there is as much as $\frac{1}{8}$ or $\frac{3}{16}$ end shake, some of the bees will be caught and rolled in between the end of the frame and the end of the hive. If the frames have not more than $\frac{1}{16}$, I prefer $\frac{1}{32}$ end shake. The bees will be shoved out of the way, and, with a little care, the hive can be closed without crushing bees. By using wire nails, and nailing through the thin ends into the tops and bottoms, we have a good, cheap, invertible frame. The frames stand on a strip of wood nailed against the ends of the hive at the bottom, and the tops of the frames are even with the top edge of the hive. In tiering up the strips on which the upper frames stand, cover the upper ends of the frames below. The entrance is at one side of the frames, and a follower is wedged against the other side of the frames, the bees being excluded from the space at the back of the follower. In connection with a top-bar of proper width and thickness, this arrangement probably reduces burr-combs and propolis to a minimum.

R. M. REYNOLDS.

E. Springfield, O., Feb. 10.

P. S.—The details on first page are important, for the reason that Heddon claims that his patent covers the close-fitting case. If you don't care to publish this, please return it.

R. M. R.

[I am free to say, that Mr. Heddon is progressive, and one of the few, I think, who are able to pick out the few good things in the rubbish of bygone days. He was the first one to

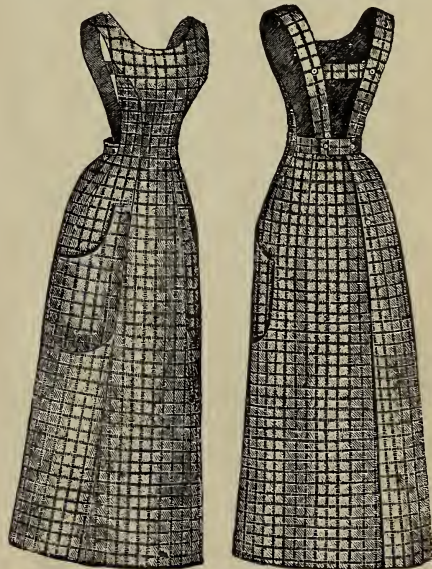
give me an insight into the possibilities resulting from the use of fixed distances. But there are one or two things which I feel need correction. If he is claiming broadly that he was the first one to suggest the use of closed-end frames in a tight-fitting case, he is greatly mistaken. I have known for some time that he was not a prior user of this combination. I found one place where it had been used in York State for a good many years, and I heard all around that it was an old idea. Mr. R. M. Reynolds, of East Springfield, O., whose letter appears above, gives us ample proof of the oldness of the idea. The two things—closed-end frames and tight-fitting cases—are so suggestive of the combination that it would be strange if it were not originated years and years ago. I have no doubt that this letter will call forth similar ones from others; but I have no disposition to stir up controversy, only that credit should fall where it is due. That no one may accuse me of hiding behind the editorial *we*, I come out under the singular form of the pronoun, and sign myself

E. R. R.]

BEE-DRESS FOR LADIES.

THOSE DOOLITTLE CELL-CUPS, AGAIN.

Since writing about aprons I have found a very pretty pattern for my bed-ticking aprons. I send you a picture of it. You need not smile. Even a bed-ticking apron will look much better if made up neatly than if fashioned after a clumsy pattern. I like to look neat, even when taking care of bees. Don't laugh, Mr. Root; I really do, although I had reached such a dilapidated condition the day you visited our apiary.



Front View—3696.

Back View—3696.

A WORK-APRON FOR THE APIARY.

While talking about dress I would suggest that ladies working with bees make their work-dresses with perfectly straight, plain skirts, and just as light as possible—no unnecessary cloth and no lining. I don't know of any thing more exhausting than heavy skirts.

I never admired blouse waists; but last summer some of my waists gave out in the very busy season and I made me a blouse, more be-

cause it was quickly and easily made than for any other reason. I found it so very cool and comfortable that I made several and wore them the rest of the season. They are very easily laundried, which is quite an item, so you can afford a clean one every day if necessary. I do not imagine they would be very becoming to stout people; but for slender ladies they do very well. At least, try one and see how you like it.

I nearly always wear a worsted skirt of some kind with mine, having it made perfectly plain, without lining, finished at the bottom with a deep hem. Then they can be laundried if necessary; but you will find they do not need it very often if made of some good serviceable color. If you get a spot or two of honey on, just sponge them off, and it is all right. I find the blouse waists very economical, as I can wear out so many old dresses in that way.

I am very anxious to know why we failed with Mr. Doolittle's artificial cups. I can hardly think it was because we did not handle the larvæ carefully enough, for Dr. Miller has successfully practiced for years the transferring of larvæ to queen-cells of the bees' own making, when he wished them to rear from imported stock. We tried as many as five colonies at a time, giving to each from ten to twelve cups, after they had been made queenless and broodless for 24 hours. The only two we did succeed with were reared over a queen-excluder, with a good laying queen below. We tried to follow directions minutely, and they certainly did look nice enough, when ready for the hive, for the most fastidious bees to use. But for some reason they preferred not to use them. These same bees started cells quite readily on the Alley plan. Now, I have an idea that it was either the cups or the royal jelly that was not quite right; but what the trouble was, I am sure I don't know. We used the jelly from cells nearly ready to seal, and carefully stirred it with a toothpick as directed, being very careful to get about the amount in each cell that is given in Mr. Doolittle's book. The cells were carefully prepared according to directions; still, there may have been something about them not quite right. It sometimes takes very little to throw things all wrong. I never for an instant doubted that Mr. Doolittle made a perfect success of it. The thing that bothered me was that we couldn't, and we did try hard too.

Marengo, Ill., Feb. 3.

EMMA WILSON.

[The picture which Miss Wilson sends us was taken from Butterick's *Delineator*; and as it seems to be just the thing, we are glad to re-engage it. Any lady who desires to make it needs only to call for pattern No. 3696, at any of the stores where Butterick's patterns are sold. If they cannot be obtained in your village, write to the Butterick Pub'g Co., New York. The price will be only nominal. We shall be glad to have our lady bee-keepers try it, and report what they think of it. The apron provides for no sleeves, it is true; but I believe it is more convenient to have detachable sleeves—if this is what you call them—as described by Miss Wilson in a former article, page 10, Jan. 1.

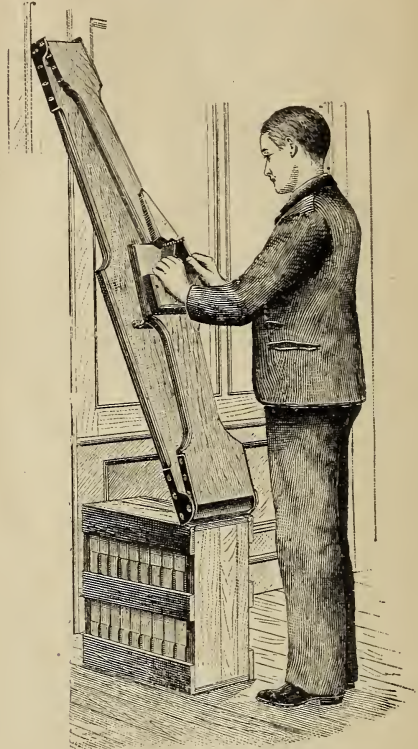
No, Miss Wilson, we will not make fun of you, even if you do make an apron of bed-ticking, of such a neat pattern. Those large pockets will be very handy for small tools, bee-brushes, handkerchiefs, etc.

In regard to those artificial cell-cups, we shall be glad to hear from those who have made them a success; and perhaps by discussing the matter a little, we shall find where the trouble lies with some of us. Even our boys here at the Home of the Honey-bees were not entirely successful with them.]

THE HUBBARD SECTION-FORMER.

AN EXCELLENT DEVICE.

A few days ago we received a letter from Mr. G. K. Hubbard, of Ft. Wayne, Ind., to the effect that he had sent us one of his section-formers by express, prepaid. He also expressed the conviction that we would be well pleased with it, and desired us to give it a thorough and most careful trial. The machine came to hand, and subsequent testing showed that Mr. H. was not far from right.



HUBBARD'S SECTION-FORMER.

The engraving shows the manner of operating the device. The operator should have an empty basket on his right-hand side; and on a stool at the left should be placed a box of sections ready to be folded. Both basket and box should be near at hand, so that all unnecessary reaching may be avoided. To operate, pick up a section, draw the two ends together, insert it in the section-former, and with a quick, gentle push, against the bridge, as it were, the corners will be crowded together quickly, easily, and neatly. Throw the section into the basket, and pick up another blank from the basket. The levers are so long that but very little power is required; and we find, by operating it in our establishment, that it is the best and easiest machine we have ever used; and, besides, it does the nicest work. Why, it is such a pretty thing to operate that I could not resist the temptation to fold up half a box of sections, just for the fun of the thing. The machine is so constructed that it is adjustable, so as to be made to squeeze the sections hard or easy. For particulars, apply to Mr. Hubbard, as above, or it can be obtained of us. See Special Notices.

E. R. R.

HOW TO BE YOUR OWN CARPENTER, ETC.

DR. MILLER GIVES US SOME VALUABLE THOUGHTS IN THIS LINE.

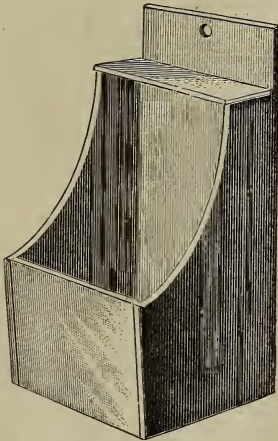
I like the "Practical Hints" on page 20. May I say something in the same line? Friend Root says, "Put a ten-cent knife in each pocket." Of course, he means in one of the pockets of each pair of pants, so that, if you forget to change when you change your suit, you will not find yourself without a knife. It may seem a little thing to quarrel about 5 cts. in the price of a knife, but I never saw a ten-cent knife that was satisfactory. I generally have two or three of the fifteen-cent Barlow knives, and you can keep on them an edge as keen as a razor. The only trouble is, they are so high-tempered that, if you are not careful, you will break necks out of the edge in whittling hard wood. As they have only one blade, I carry another knife for its small blades.

"Almost any sort of saw will do if you keep it in order." Yes, "if you keep it in order." But the trouble is, every sort of saw can't be kept in order. I paid a dollar for a saw that isn't worth a dime—so soft you can't keep it sharp. It's economy to get good tools.

"A sharp leadpencil in each pocket." It may be tolerably sharp just at the point, but you can't carry in your pocket a pencil with any thing but a very short point. If you do, it will break off.

"Never saw a board off without a mark made with your try-square." I think that hardly means to use a try-square on a board a foot wide. The carpenter's square for that.

Driving nails is so important a part of a bee-keeper's work that it is worth while to say a good deal about the minutiae. I have had much experience in it, and yet I suspect there



DR. MILLER'S NAIL-BOX.

is much for me to learn yet. I'd like to find a good book on driving nails. Friend Root speaks of a hammer that suits you, and an assortment of nails. I'm sure he'll tell you that you need an assortment of hammers just as well as an assortment of nails. A hammer fit for a six-inch spike would be a poor thing to drive a half-inch nail; and a hammer just right for a half-inch nail wouldn't drive a spike at all. An adze-eye hammer is the cheapest in the long run. So is a good-priced hammer. A cheap hammer with a soft face is a nuisance. In a little while it is all battered up and one-sided.

Have your nails where you can pick them up

handily. Don't try to use them out of the paper in which you bought them. If I am doing a long job of nailing, I like a saucer to hold them. For very small nails a plate is good, having on it rather few nails, so that they will lie scattered so as to be easily picked up singly. Sometimes I am doing a long job of nailing, having no convenient place to put my nails without danger of tipping them over, and a lot of spilled nails is somewhat trying on the temper. In such case I often use the cover of a large blacking-box. Drive a $\frac{3}{4}$ nail down through the blacking-box cover, so as to hold it firmly in its place, even if it stands on the edge of an inch board. But for a regular place to keep my nails I have a set of nail-boxes hung on the wall. I got the idea from seeing some metal ones in a tin-shop. I put nails in the wall to hang them regularly upon, beginning at $\frac{1}{2}$, $\frac{3}{8}$, $\frac{1}{4}$, and so on. I am sorry to say, that so many have been handling them that they are not all now in their places. Mine are made of wood, just such as I had most handy. They can be varied in any way, but the general principle, I think, you will like. Mine are made of $\frac{1}{4}$ -inch stuff, division-boards of Heddon supers.

1 piece $10\frac{1}{2} \times 4\frac{1}{4}$.

2 pieces $8 \times 4\frac{1}{4}$.

1 piece $4\frac{3}{4} \times 4\frac{1}{4}$.

1 piece $4\frac{3}{4} \times 3$.

1 piece $4\frac{1}{2} \times 1\frac{1}{4}$.

Nail the two pieces that are alike on the long piece, letting them come flush at one end, then on that end nail the largest piece that is left. At that same end, nail on the piece three inches wide, and at the other end nail on the remaining piece, letting it come close against the long piece. I used $\frac{3}{4}$ -inch wire nails to make them, putting them in about $\frac{1}{4}$ of an inch apart. Then whittle out the sides where nothing is nailed on them, and make a hole in the projecting end of the long board, by which to hang it on a nail on the wall. It is always ready for immediate use. All you have to do is to take it from the wall, and lay it on the long side, giving it a shake to bring some of the nails down on the bottom (or back).

If you have a lot of stuff cut ready to nail together, the sooner it is nailed the better. The ends dry out, and then it will split in nailing. I once had such a lot of stuff that had lain a year or more, and, no matter how careful I might be, it would split in nailing. I then got a tub of water, soaked the ends three or four hours, and had no trouble. Of course, all the ends had to be soaked alike or they would not fit.

If a nail needs to be straightened a little in driving, do it with the claw of the hammer.

If you have any difficulty in driving straight enough so that nails will not come out at the side of your board, let the board have its edge toward you. The eye will detect any variation from side to side, but will not easily tell if the head of the nail bends to or from you.

Marengo, Ill., Jan. 6.

C. C. MILLER.

[Well, well, doctor! who would have thought that you knew so much about driving nails, and making things? Why, I always supposed that you kind o' stood around and let other folks do the work—at least, when it came to nice carpentering. Why didn't you show me those nice nail-boxes? Who in the world studied up that idea of tipping the nail-box over on its back (like laying the baby on the floor, for instance) so the nails would scatter down, one at a time, and not prick your fingers? I am sure you might have that nail-box patented. Now, doctor, the ten-cent knives that I talked about have exactly the same steel in them that the fifteen-cent Barlow does. You

are just like ever so many bee-keepers. The Barlow knife is your *hobby*, and therefore you have got it into your head that no other knife will even whittle. Never mind; it is not a very bad hobby, after all. In regard to saws, I do not think I ever had one that would not do good work if it were properly filed and set. It may be, however, that hard seasoned wood like oak might turn the teeth of a soft-tempered saw. Carry an *automatic* pencil, of course, and just slip the sharp point back into the tube when not in use. Your hints on driving nails all commend themselves to good common sense. Why, doctor, you have told me a good many things that even I did not know before. Isn't that wonderful? Your suggestion as to the cause of the wood splitting when the nail is driven near the end is also new to me. Nothing vexes me much more than to see wood split in nailing; and yet I have sometimes thought that there was no help for it except to get the bradawl, and you coolly inform us that we can have a perfect remedy by soaking the ends well in water. I presume you forget, doctor, that our price list pictures a nice assortment of hammers, all the way from one small enough to drive a common pin its whole length into a pine board, up to the size of one that will drive a forty-penny wire nail.]

STILL ANOTHER OUTSIDE CASE.

HOW IT IS MADE, AND ITS SUCCESS.

How to convert the Dovetailed hive into a chaff hive quickly and cheaply: Make the bottom-board 19x25, so it will project $2\frac{1}{2}$ inches on all sides. Now make a box 19x25 one foot high, without top or bottom, of half-inch lumber. Take off the summer cover, but leave on the honey-board. It is *better* than a Hill device, for it excludes mice. Spread a piece of burlap over the top; set this outside rim around the hive, and there is a space of just 2 inches between the walls all around for the chaff. Of course, a bridge should be fixed at the entrance so the bees can come out and fly.

For a cover, use the gable cover and you have a hive that is cheap yet handy.

I do not go into details, because it is not necessary. The average bee-keeper is intelligent enough to make them to his own fancy. I have packed bees this way for three winters, and have yet to lose a colony; while those I wintered in the cellar would die in midwinter, or spring dwindle if they happened to pull through. It is less work to pack them in the fall than it is to carry them into the cellar and out again, and then pack them for spring protection. They will eat more honey out of doors than in the cellar, but they are stronger, more energetic, and will gather enough more the following season to more than pay for extra food used in wintering. Strong colonies, ripe honey, chaff packing, and upward ventilation, constitute successful outdoor wintering in my locality.

RESULT OF THE SEASON.

I had eleven colonies, spring count; 22 by natural swarming. I obtained 200 lbs. of comb honey, 400 lbs. extracted. All the bees are in splendid shape for winter. Although I had less than half a crop, I feel more like rejoicing than complaining, considering the utter failure of others. Captured 7 first and 6 second premiums at our county fair—\$12.00. H. L. HUTCHINSON.

Mayville, Mich., Jan. 24.

[Last fall we put about a dozen colonies, packed almost exactly in the way you describe with the exception that the bottom-board does

not project. The shells, or rims, are pushed into sawdust around the bottom-boards. They are working nicely so far, as also are the 28 in the dead-air-space shells.]

HILTON'S LETTER.

WHAT I SAW AND HEARD IN GRAND TRAVERSE COUNTY.

Bro. Root:—I think while we were at Detroit you said you wished I would write up my visit "up north." Well, after looking over the enterprising town of Traverse City I wended my way down that historical peninsula now known as Peninsula Township. This wonderful piece of God's footstool is eighteen miles long, and will average perhaps one mile wide. There is but one road, and this runs in a romantic way, now on the ridge overlooking two of the most beautiful bays I ever saw, the water being so clear that you can see the bottom at a depth of twenty feet; then we are driving along close to the water's edge, or, if you please, in the water, for the shores are so shallow and pebbly that you can drive almost anywhere. At the extreme point is what is known in history as "Old Mission." It is now one of the finest fruit-farms in the State, and has recently been sold for a fabulous price. The whole peninsula is fast becoming one of the finest fruit and honey belts in this grand State of ours. One peculiar feature to me was, that, the further down the peninsula you go, the heavier the timber and soil become.

My first stop was about two and a half miles from the city where lives our genial friend J. P. Berg. He has a bright family, consisting of a wife and five children. I found them all as busy as beavers, and I came away convinced that they would never rust out, either in things pertaining to this world or the next. Friend Berg has about forty acres devoted to fruits of every kind adapted to his climate and soil. Space will not permit me to enumerate them here. He also has about 75 colonies of bees. About half of these are in single-walled hives, in the finest cellar for the purpose I ever saw. The rest are in chaff hives on summer stands; but he informed me he would eventually put all into chaff hives, as they wintered better, and were strong earlier in the spring. With the short seasons they have there it is absolutely necessary to have them strong at the beginning of the honey-flow. Mr. Berg has a number of your Dovetailed hives, and thinks that, as a single-walled hive, they stand at the head.

THE HOME OF MR. BERG.

At supper time I was asked to give thanks, and was both pleased and surprised, as soon as I said "amen," to hear the eldest daughter, then the next eldest, down to the little tot that could not talk plain, ask a blessing in their own language, German. I stayed with them two nights, and each morning was asked, after breakfast, to read. I selected from my favorite book, Luke, and occasionally stopped and talked of the events therein recorded, after which Bro. Berg offered a fervent and eloquent prayer. This was followed by the children, as at the table.

As friend Berg is a subscriber to GLEANINGS, and, if printed, this will come to his notice, I hope he will not feel that I am intruding upon the sanctity of his home. Would to God there were more such!

In the morning, "old Grey," a noble animal, was brought to the door before the fruit-wagon, and I was started on my journey down the peninsula. My next stop was at Mrs. N. H. John-

ston's. She has, I think, about 60 colonies of bees in single-walled hives, and they were all snugly tucked away in the cellar. I understood her bees were blacks and hybrids; but she assured me the greater part of her honey came from red clover, and that her bees would leave the white clover for the red.

After a pleasant visit here I journeyed on to Mr. Wm. J. C. Davis' home. This is about twelve miles down the peninsula, and situated on the shores of the south bay. Mr. Davis has recently moved from Wexford County: has fifteen colonies of bees, and shows his preference for Italian bees and chaff hives. They insisted on my staying to dinner, and here for the first time I ate red-clover honey gathered by the honey-bee. I have robbed bumble-bees' nests. Mr. Davis fully confirmed all Mrs. Johnston said in regard to the bees working on red clover. He is an intelligent, well-read man, and he assured me the floweret of the clover grows shorter there than further south, making it possible for any bee to work upon it.

Mr. Davis is well protected by high hills on the east, west, and north, and is fast getting his farm into fruit. His place is especially adapted to early gardening, with no fear of drouth, as he can turn a spring brook across the place almost anywhere.

There are many strange and wonderful things on and around this peculiar strip of land, that I should like to talk about, but space forbids. Perhaps I can at another time. On one little spot out in the north bay lives the Robinson Crusoe of Michigan. The land is not located on the maps, consequently he pays no taxes, and can not vote. His history as it comes to me is an interesting one. I should have very much liked to visit him and several others who keep bees on the peninsula, but my time would not permit. But I am going again some time, and in the summer if possible, for it must be a veritable paradise then. GEO. E. HILTON.

Fremont, Mich., Jan. 23.

[Friend H., we are very much interested in that wonderful peninsula: and it rejoices our hearts to know of all such Christian homes as you describe. And, by the way, we want to know more about the Robinson Crusoe of the State of Michigan. There are quite a few of us who have not yet forgotten the enthusiasm with which we read the real Robinson Crusoe.]

AIR-SPACE VS. PACKING.

EXPERIMENTS, WITH THE RESULT IN FAVOR OF THE AIR-SPACE.

I made and used chaff and double-walled hives for several years in Southern Indiana. I made the best chaff-packed hives with three to four inch packing of oat chaff, and made some with dead-air spaces of the same spaces, and I found that bees did as well in the air-spaced hives as in the chaff-filled ones; and, further, in damp weather the air-spaced ones were the dryest, and emitted no damp or moldy smell. They were all furnished with tin roofs, well painted, and the walls of all were well painted with white lead and oil. Subsequently I reduced the air-space to two inches, using a partition of building-paper, making two spaces of one inch each, which I found did better than either of the others.

I came south to Florida, and did no more in experimenting with the make of hives until lately, when I have been experimenting some again with double-walled hives here, and I find them very profitable even in this climate.

DEAD-AIR SPACE FOR REFRIGERATORS.

You have no doubt observed the double glass in some of the coach windows, and that no frost will form on such double-glass windows, and it is the same with the thin wooden walls. I have also made a few small refrigerators with thin walls with several spaces of about $\frac{1}{2}$ inch, made by using building-paper, and I find that a given quantity of ice will keep as long as in any packed walls of even double the thickness. I have also observed, in brick walls of dwellings, where the walls were laid up with a hollow wall, or a space of about two inches, with just sufficient tie-brick to keep the two walls secure, that the walls are drier in wet weather, cooler in hot, and warmer in cold weather, showing, beyond a practical doubt, that dead-air is a better non-conductor of cold, heat, and moisture, than any packing that we can practically use, and certainly it is the cheapest.

CARRYING POLLEN IN FLORIDA.

Our bees have been busy most of the time since Christmas carrying pollen and honey from the maple, which is in bloom. It lasts here usually about six weeks, and starts the bees to breeding very nicely. The willow comes in about the first of February, and will reach to orange bloom in March.. This is a very favorable location for bee-keeping along the St. John's River. We have had considerable cold this winter, with some frosts, but none severe enough to damage the orange-trees or the fruit on the trees.

THE CONTEMPLATED U. S. EXPERIMENT STATION FOR THE SOUTH.

It appears from reports sent out that the U. S. entomologist contemplates establishing an apicultural experiment station somewhere in the South. It would be a great help to Southern bee culture, as we are left almost alone here to work out our own destiny, and that of our bees. We are unable to make experiments alone. Here in South Florida are vast fields of research, open for the experimenter. The season is much longer here for such work as breeding and the crossing of the races, and early enough to rear queens and send north to test as to their good qualities; and, further, there could be places where the different races could be reared in absolute purity, as here are many islands around the coast of 1200 miles where their isolation would be absolute. J. CRAYCRAFT.

Aster Park, Fla., Jan. 17.

[Friend C., I am very well aware that double panes of glass, especially if the glass is puttied in, will make an air-space that is better than if the space were filled with chaff—or just as good at least. A hollow wall made of bricks and mortar is right in the same line. It is practically air-tight. The air can not change places with that on the outside. I suppose a bee-hive *could* be made out of lumber, with a dead-air space nearly air-tight. But if you use boards wide enough for the side of a hive, they will be quite sure to check, sooner or later. Then the frost gets through, and the air inside circulates with that outside, so the temperature is about the same. With our chaff hive, as I have so many times said, we prefer the walls made of narrow strips, somewhat corn-crib fashion. This is to admit moisture to pass out freely, just in the same way the old-fashioned straw hive permits the moisture from the bees to work through, and just as woolen clothing lets the perspiration from our bodies get through. But without the chaff packing, the air, moisture, and every thing else would get through altogether *too* fast. Now, by filling this space with loose dry chaff, air can still get

through, but very slowly, just as it gets through the woolen clothing on our bodies, through the fur of animals, the sawdust used in an ice-house, etc. Now, if we can make hives with dead-air spaces so as to answer just as well as chaff, will they not cost more money? and at the same time do we not lose this desirable quality in a bee-hive that we have in the old-fashioned straw bee-hive, and all porous non-conductors of heat, such as I have described? If an ordinary chaff hive will winter bees, and enable them to breed up in the spring during a series of years just as well *with the chaff left out* as with it in, then there is no use of putting chaff in any longer. May be we had better ask the experiment stations to institute some tests. Here is a point for friend Larrabee and Prof. Cook.]

A. I. R.

THE BEE-KEEPERS' UNION.

SHALL IT BE UNITED WITH THE N. A. B. K. A.?

As a member of the Bee-keepers' Union, I say *no*. The two associations don't belong together. The N. A. B. K. A. is composed for the most part of annual members who join when the association happens to meet in their neighborhood. There are a few who go every year, but the number is very small in comparison to the number that belong to the Bee-keepers' Union, and the latter has not one-tenth part of the members that it should have. I don't see why it is that so few bee-keepers are willing to join, when the Union has done so much to defend our rights. Every bee-keeper in America is benefited by the Union. Then why not join and help the good work? Just put in one dollar a year, and be in a position so that, if you get into trouble, you can call on the Union to help you to defend your rights.

There is a great deal of prejudice and superstition about bees, and many think that the bee-keeper is stealing his living from other people's property. They claim the bees have no right to come on their land to gather honey. The land is theirs, the crop is theirs, the honey is theirs, and we have no business to let our bees go on to their land to gather honey. If the bees take the honey, the pasture is not as good, or the hay has lost a valuable part of its nutriment if the bees take the honey out. Some men kick because the buckwheat failed. They say the bees blasted it by taking the honey; others say the bees have spoiled the apple crop. Some say the bees injure the corn crop by working on the tassels to gather pollen, and there are a great many other things that I hear advanced every year—just such nonsense about something in connection with the bees. Now, let one of those superstitious men get mad at you. He wants to spite you somehow, he doesn't care how. If he thinks there is a possible show for him to make a case he will sue you for damage done him by your bees. All there was to the Freeborn case was spite and ignorance. The man claimed that Freeborn's bees worked on his clover, and kept his sheep away so the sheep became poor, and died the next winter in consequence. This was the first case that the Union had to deal with, and was thrown out of court, giving the Union its first victory. The Union has had several cases since then, all victorious. If you join the Union, you are entitled to help in case you are sued by any of these ignorant chaps. We ought to have 5000 members; then we should have a sum in the treasury that would command respect. Now is a good time to join. Commence with the year. Send your dollar to Mr. T. G. Newman, 246 Madison Street, Chicago, and become a mem-

ber of the Union. Do it now, before you forget it. In union there is strength. A man may be a bee-keeper and be a poor man. Now, you see some of his spiteful neighbors may take a notion to pitch into him, knowing he is poor, just to annoy him and make him expense. But if they knew he belonged to the Union, and he had an army of bee-men to fight the battle with him, they would let him alone. There have already been several threatenings hushed up because the bee-keepers' enemy had to look the Bee-keepers' Union in the face.

About the N. A. B. K. A., I think it is a good institution. I am sorry that I have not been able to attend the meetings. But it costs money to go, and this year money was scarce with us. About a dozen of us tried to get cheaper rates on the railroad, but failed, and so did not go. Next year it is away down in Albany, and, of course, but few from these parts will be there, and so it goes skipping about from one place to another, all over the continent. Well, that is all right. The very name of the association calls for its moving about from place to place. But, no matter where the meetings are held, we can all get the proceedings in printed form, and I value these very highly. But unless we attend we miss the social part of the meeting, and the social part would be a big treat to me. But I don't see how we can mix these two institutions together. They are very different. The Bee-keepers' Union doesn't have to meet anywhere to carry on its business. We pay our dues, and elect the officers by ballot. All is done through the mail. I don't see how the Union could be benefited by a union with the N. A. B. K. A. Will Dr. Miller, or some other one who advocates the plan, explain?

HONEY-PACKAGES FOR EXTRACTED HONEY.

In Feb. 1st GLEANINGS, page 96, Messrs. Hildreth Bros. & Segelken recommend kegs, half-barrels, and barrels, except California, and I don't see why California should be an exception. The editor says, in his remarks, that square cans must be used in California because the climate there will shrink the wooden packages. In fact, kegs would be utterly useless with them. With the experience that I have had with kegs and barrels, I am positively of the opinion that it is a mistake that Californians can not use kegs or barrels for honey. If the barrels are made from perfectly seasoned white oak, or some other timber as good, no soft timber, and hooped with heavy iron hoops, then season the barrels six months in an upper story of some good weather-tight building, then drive the hoops, and see that the barrel is tight, air-tight (don't put any water into it), you are all right. Now, if your barrel is air-tight, you can easily find it out by blowing into it with your mouth through the vent-hole. Blow in all the air you possibly can, and then slip your finger over the vent and hold it there tight for a minute or two; then take off the finger. If the barrel is tight, the air will come out whistling. You can put honey in that barrel in California, and ship it or keep it as long as you please. I don't think white-oak timber will give honey any bad taste. I have used it for 20 years or more, and have never heard any complaint. Ash timber is not fit for honey-packages. The honey will work through the grain of the timber. I have tried pine and basswood timber for honey packages, but I don't like either. There is nothing that suits me as well as good heavy white oak, with heavy iron hoops. I don't like the 60-lb. tin cans. I got ten pairs of them a few years ago, and have some of them yet. Two years ago I filled some of them with honey. They had to be filled full to hold the 60 pounds. Then I had some of them the next winter, and

wanted to get the honey out. I put one at a time in a clothes-boiler over the stove, with water in the boiler to melt the honey. I took off the screw cap. The honey was candied. When it began to melt it began to run over. The hole was so small that I could not get any honey out except with a teaspoon—too much of a job. I would not put over 58 lbs. in them again. I like a good barrel with a few 50 and 100 lb. kegs, to retail. Barrels are easy to handle; you can roll them, and save lifting. I have shipped a great many tons of honey in barrels, and never had any leak. E. FRANCE.

Platteville, Wis., Feb. 4.

[I think I can agree with you, friend France, in regard to the inadvisability of merging the Bee-keepers' Union into the N. A. B. K. A. Under its present management, and with its small membership, the Union has done a magnificent service. Could it do better under the wings of the North American? I doubt it.

It is true, there is a kind of ignorant prejudice that some farmers and others have, that bees injure their apple-crops. At our Shane yard, located in an orchard, an old farmer intimated that, since the bees had been there, they had not been able to get any apples. I showed him that there were others who had no bees near them who got no better crops. The facts were, if the bees were removed entirely the crop would not be as good. It is a remarkable fact, that, whenever there is a good yield of buckwheat honey, there is always a good crop of grain. A poor yield of honey is accompanied by a moderate yield of grain. I am glad to get your testimony in regard to barrels. But I am of the opinion that, if you were in that dry climate of California for awhile, you would find it would shrink almost any thing; but your hints about having the barrels stored for six months in a dry place and then testing them with air instead of water are excellent.] E. R. R.

CONTRACTION.

THE RIGHT AND WRONG KIND.

Friend Root:—GLEANINGS for Feb. 1 has just come to hand; and while looking it over, I find some ideas near the top of page 88 that need answering, or a little explanation, from a contraction standpoint. It says, "The tendency of the times is against contraction to less than eight frames. It is far better to have a big, rousing colony on eight frames, than a medium one on four or six frames."

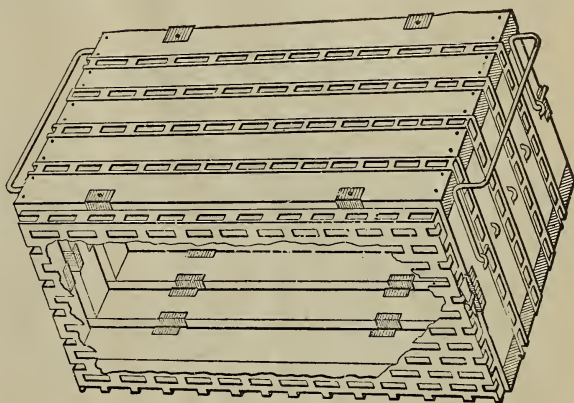
Now, suppose you have a colony and I have a colony, and the honey-harvest begins about the 25th of June and lasts until the 15th of July, you may give your colony the freedom of eight frames all the time, and I (in accordance with contraction methods) will give mine the freedom of eight frames all the time until June 15th or 20th, when I contract the brood-space to five frames. Would not my colony be as rousing as yours at the time of contraction? Would not my colony continue just as populous as yours for at least 21 days following the contraction?

I have not known a honey-harvest in the Northern States to last 30 days—scarcely 20; but even if the harvest lasted 30 days, the 9 days of brood production in the three questionable frames could not add to the storage of honey, because of lack of age of these bees.

I have often thought that the young bees that hatch from the five combs may be as sufficient to perform the labors within the hive as any larger number; or, in other words, they may be able to prepare the combs and store all the honey the force of outside workers may bring from the fields.

One of the principal aims of contraction is to get a rousing eight or ten frame colony, and then compel the bees to go into the sections. Contraction is really not much of a success until we get a "big rousing colony."

Now, I am a firm believer in contraction; still, I use a brood-chamber with four frames more than yours—that is, twelve frames. Up to swarming last year, I tried my best to have the queens fill all of the twelve frames with brood. Eight frames proved to be an average of the best they could do. At the opening of the honey-harvest I arranged queen-excluding zinc above and a queen-excluding zinc division-board on each side of the four center frames of brood, and placed the queen upon them. Then as there was no brood in the two frames that



DAYTON'S QUEEN-RESTRICTOR.

were in the remote ends of the hive, they were taken out and the two frames of brood on each side of the excluding division-boards were moved toward the ends of the hive, and a wide frame of sections sandwiched between them and the main brood-apartment. The sections were filled full of foundation. It required only about two days for these sections to be filled with combs ready for the honey. When the sections were half or two-thirds full of comb and honey they were taken from the wide frames and put in supers on the top of the hive, and new sections took their places in the wide frames. Twenty colonies were managed thus. At the close of a light harvest of seven days, each colony had a crate of 28 sections nearly finished, and five or six colonies had two crates each in similar condition.

At the time this contraction was begun there was also put over each of sixteen picked colonies a rack of 28 sections, two or three of which sections contained combs as "baits." Of these sixteen colonies, only one went into the super to work foundation at all, and the rest came off as dry as when put on.

A bee-keeper, Mr. Guest by name, called a few minutes ago to talk bees, and said, "I think contraction must be what I lack. I worked ten days to make the bees go into the sections last year, and then failed."

At the top of page 88 it also says, "Pollen in the sections is usually the result of too much contraction of the brood-nest." It is because

of a wrong kind, or of not enough contraction. Keep the queen upon four frames by zinc division-boards, then keep a brood-comb to catch pollen on each outside of the zinc division-boards, then put in wide frames of sections, and then frames of brood, and you will find the pollen near to the queen and the young brood.

Clinton, Wis., Feb. 4.

C. W. DAYTON.

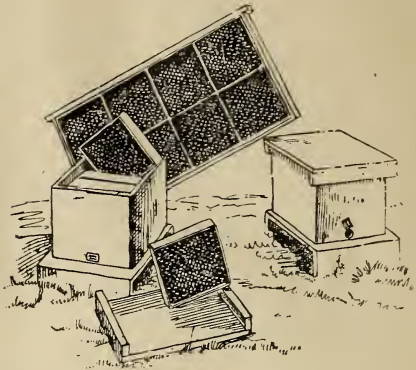
[As you put it, and in your case, I do not know but I should have to make an exception: but for the average bee-keeper, I think that my remarks still hold true—that a big rousing colony on eight frames is far better than a medium one on from four to six frames; and after all, friend Dayton, it is considerable of an art to manage so as to make contraction a real benefit. If the season turns out just as we think it will, and if we have the requisite skill, all well and good; but too often contraction encourages swarming. Reducing the capacity of egg-laying, as a general thing, makes the bees dissatisfied. An unlimited capacity is quite apt to discourage, if not to prevent entirely, all swarming. Neither the Dadants nor Mr. E. France, who work on this latter principle, have swarming to any extent, and they do get the honey, you know. Now, it seems to me there is a happy medium between the two extremes—between the ten or twelve frame colony and the four or six frame colony; namely, the eight-frame hive. But you mention one advantage, and it is an important one too; namely, that by judicious contraction at the right time, and the use of perforated zinc, we may be able to get a large force of bees for the honey-flow, and yet very materially cut down *unnecessary* brood-rearing following the honey-flow. Your queen-restrictor will work nicely, no doubt; but is it not a great deal of work? Why wouldn't it be easier and less work to use shallow Heddon hives; and when you restrict egg-laying, do so by means of horizontal divisions rather than by perpendicular and horizontal divisions as you do? You are obliged to have zinc in between the end-bars of the wire frames and the top and bottom bar, as well as the two sides. You can contract by the Heddon plan by simply putting the perforated zinc board above and below one section, and the whole thing is done.] E. R.

RAMBLE NO. 38.

E. L. PRATT'S SYSTEM OF QUEEN-REARING.

Within a few years several young bee-keepers have come to the front, and, by their activity, are making quite a stir in the apicultural world: and although it has a shade of unpleasantness to us old duffers, we shall have, sooner or later, to take a back seat. Among this class of progressive young men is Mr. E. L. Pratt, recently of Marlboro, but who has now located at Beverly, Mass., less than two miles from Bro. Alley. Mr. Pratt is well known to the fraternity as the editor of the *Queen-Breeders' Journal*, which had a short but brilliant career. But Mr. Pratt's pen is not idle, as we often see his marks in the various journals. He has an apiary of 90 colonies, and will run them largely during the coming season in rearing yellow Carniolans. His system is much like Bro. Alley's, but his nucleus hive is constructed upon a different plan. The photo shows the hive and frame very plainly. The small frames are made by slitting in two a two-inch $4\frac{1}{4} \times 4\frac{1}{4}$ section, and filled with comb cut from ordinary frames. The little hive contains four of these combs. Eight, as seen in the photo, will fit into an ordinary L. frame, thus enabling the combs to be changed from a nucleus to a full colony,

which is a very good feature for rapid manipulation. The little frames, instead of hanging in the little hive, rest upon proper supports in the bottom. Perforated metal is used over every entrance, thus ensuring certainty of fertilization.



PRATT'S QUEEN-REARING HIVE.

At the close of the queen-rearing season, the little combs can be put into a large frame, and several be given to a full colony, with no detriment to the colony, but a kindness to the little pets that have been a profit to us during the beautiful summer days. Mr. Pratt has issued a neat little pamphlet describing his methods, which we judge he would be willing to send to those who wish to give his system a further study.

But train time drew near. Bro. Alley, Pratt, and the Rambler, arose from their very pleasant triangular talk, and Bro. A.'s horse hustled us over that half-mile at a lively gait. Our farewells were spoken, and with a final wave of the hand we were soon out of the pleasant village of Wenham, perhaps for ever; but we shall ever remember the pleasant hours we enjoyed in the famous Bay State Apiary.



THE WAY ALLEY GETS THERE.

As stated in our last ramble, our thoughts kept dwelling upon the subject of egg or larval queen-rearing, and our cogitations led us into the following review of the question. My first effort to get facts was to write to a large number of noted queen-breeders, from Maine to Texas, irrespective of race, sex, or previous condition. Answers were very courteously returned, and there was an almost unanimous answer for the rearing of queens from the egg, or, what is practically the same, just hatched larvae. Only one raised a voice of disagreement, and claimed the 36-hour limit.

I therefore found that, as far as practice is concerned, the large majority were on or close to the egg plan; and the reason advocated was that the larvæ should early receive an abundance of food. The abundance of food is a very good thing to advocate; but upon this point I would give but very little for an opinion or an investigation that goes no further than the unaided eye can reach. Upon turning to our standard text-books I found this visible abundance prominently treated upon with more or less modifying points brought out by closer researches.

I also found two divergent lines of belief. The first class of writers would lead us to believe that especial royal jelly is given to larvæ designated to be queens from the very first moment of hatching. Class No. 2 advocates that all larvæ are fed alike until 36 hours old, and that a coarser food is given to the larvæ destined to become workers. As to which of these two classes is right, is, perhaps, beyond the reach of any one to definitely decide, until further researches are made; but we can quote opinions and tests as far as made, and find indications that point toward certain results.

When the investigator considers the wonderful changes that are effected, or, as Prof. Cook says, the "marvelous transformation—ovaries developed and filled with eggs; mouth organs; the wings; the legs; the sting—aye, even the size, form, and habits, all are marvelously changed,"—that all this change has been wrought with merely an abundance of food, or a day's feeding, this, I say, is not a satisfactory explanation to him, and we find him studying the bee structurally, opening up to us a labyrinth of wonders which has been traced but a short distance toward its most intricate secrets.

Cheshire quite conclusively shows that larval food, or, at least, a portion of it, is a secretion from the lower or head gland, and that this food has the singular power of developing the generative faculty; but he is silent as to its chemical qualities.

We now turn to Cook, and find, on pages 89 and 117, Dr. A. de Planta quoted as showing from chemical tests that this royal jelly is different from the food of both the worker and drone larvæ.

If the royal food is different, as also hinted by other writers, when is it given to the larvæ? Doolittle, in class No. 2, says, after 36 hours; Cheshire, while substantially agreeing with this class, says, on page 289, Vol. 2, "The fact that queens are started from the egg in normal queen-cells is suggestive; but in addition it is noticeable that the amount of food given in the queen-cup exceeds that supplied to a worker, even in the initial steps." And on page 290, "The larvæ should be intended by the nurses for a queen from the beginning." Cook, A B C, and Alley, all stand in class No. 1, and would agree with the above quotation. I, however, find that Mr. Alley, who has been the most strenuous advocate of rearing queens from the egg, is tending toward class No. 2; for on page 171, last volume of the *Api.*, he says, "When eggs are placed in a queenless colony, the bees will not in all cases immediately commence to feed the larva for a queen." We also find Langstroth's Revised standing with class No. 2. As the case now stands, I find that class No. 1 are in the majority, both in theory and in practice; but I also find strong evidence that all classes are not satisfied with the investigations thus far, and would like still further light.

That good queens can be reared by both classes is a fact not to be controverted; and I think queen-breeders of every name and nature can show a long list of testimonials.

But the question ever recurs, Are we rearing

the best type of queens? and if not, how shall we do it? The question can be answered only by a more searching investigation with the microscope than has heretofore ever been made. If we consult Cheshire we find the wonderful head gland No. 1, while fully developed in the worker, is only rudimentary, if at all, in the queen; but I quote: "It is peculiarly important to observe, that the higher the quality of the queen the further will she be removed from the worker in this matter—poor queens, hurriedly raised, really possessing this gland in an extremely rudimentary form, while those with the largest ovaries have even the plate imperforate, and no trace of a duct is discoverable." To the microscopist we must therefore turn for aid. If this duct is entirely absent in queens reared from larvæ 36 or 72 hours old, then they are good enough.

A series of close examinations would certainly teach us at what age to select larvæ for queen-rearing, which would be infinitely better than the present guesswork. Let us employ the microscopist.

RAMBLER.

DOWN BRAKES!

L. C. ANTILL AGAIN ON CLOSED-END FRAMES.

Extremes exist in almost every thing, and I am not sure but we hear of as many who go to extremes in apiculture as in any other pursuit. I do not wish to belong to that class, and I really do not think I do. I notice in GLEANINGS that A. I. Root is whistling "down brakes" in regard to changing brood-frames; and from letters I have received relating to this topic since my article was printed in GLEANINGS on that subject, I am led to think he is right, and that there is danger that some may be led astray at the present time by what is said in the journals.

In the first place, I wish it clearly understood that I do not go back on what was said in my article on closed-end frames, and I firmly believe they have all the advantages claimed for them, and more might be said in their favor. Still, I do not think it would be wise for every person who keeps bees to drop every other frame. Those who are keeping but a few colonies of bees, as a general rule had better retain the frame they have in use, whether it be the closed-end or hanging frame, for the reason there would be so little difference in the amount of honey stored. Such as have the time, ample means, and a desire to experiment, let such test both kinds of frames, and give to others the result of their experience. But to all who are fully in the business as a pursuit, having *either* style of frame, and but one kind, I would say, *go slow in making any change*, at least until making a careful test. If only a part were changed, there would be the continual annoyance of two kinds—such an annoyance as I could not think of enduring. But in making an entire change in one or more large apiaries, it would involve a heavy expense. This, some could not meet without being involved in debt, while to others the loss in money would be more than all that ever would be gained in time saved or convenience.

Then, again, after using for years one method and one set of implements, even though the new were much superior, for a time at least they would be less wildy and not satisfactory, and probably a wish many times that they had not made the change would be the result.

But to such as are beginners, and contemplate making bee-keeping a business pursuit, this point of closed-end brood-frames should, along with many other points pertaining to the pursuit, receive careful consideration and then be tested.

Nothing short of an actual test should satisfy. Obtaining the real hives with all that pertains to them, place them side by side in the apiary, put equally strong colonies in the different kinds; in this way, after a suitable length of time, each could decide for himself what would suit him best. No supplies for sale. I do not make hives, nor keep supplies for sale. Please do not send to me for hives or frames for patterns.

L. C. AXTELL.

Roseville, Warren Co., Ill., Feb. 12.

[I am glad of your caution. It seems to be a fact, that, when the merits of a new thing or an old thing revised are discussed, some one—yes, perhaps a good many, will rush headlong into it. I have suggested the wisdom several times of going slow. Some one will say, "Keep out the discussion altogether." That would not do. It is the business of bee-journals to bring up these things.]

E. R.

[Permit me to add my most emphatic emphasis to the excellent points you make, friend A.]

A. I. R.

GLOVES FOR BEE-KEEPERS.

MRS. HARRISON GIVES US SOME OF HER EXPERIENCE.

In GLEANINGS for Feb. 1, Emma Wilson requests those who have had experience with rubber gloves to tell how they like them. In the early days of my bee-keeping I asked a saleslady whom I knew, what kind of gloves they had, suitable for me to wear in an apiary. She placed before me a box of rubber gloves, saying, "Mrs. Harrison, this is exactly what you want—see how nicely they fit: just the thing for driving, and they will sweat your hands, removing all tan, and make them so soft and white." I paid the modest sum of \$1.75, and went home rejoicing, and told the bees that I had gloves now that they could not sting through.

The weather was very warm, and I pulled on my gloves with a deal of pomp and ceremony, and went to work with the bees. In a short time I realized that I was very uncomfortable, and knew not why. I was very much interested in my work, and paid little attention to myself; and when I had finished I drew off the gloves and found them dripping wet. With a few times wearing they rotted out; and when I tried to mend them the stitches broke out; and ever since, when I see them advertised by supply-dealers, I feel like accusing them of fraud—they are a delusion and a snare.

I then procured the best-fitting pair of buckskin gloves, with gauntlets, that I could find, and sewed denim on them and an elastic, which keeps them in place, and bees from crawling inside. When these gloves get heavy with propolis I pick it off, which can be done easily with a little practice. When they wear through I mend them with soft leather cut from an old kid shoe. The wear all comes in the same place; and when the patches wear through, rip them off, pick off the propolis, mend up again, and they are good for another long season of wear. Whenever I work in the apiary without gloves I repent it; for if I am not stung, my hands are stuck up with propolis, and under and around my finger-nails; and using soap to remove it discolors my hands, and makes them rough and uncomfortable.

I had a friend who always wore linen mittens while working with bees, as bees do not sting through brown linen. I prefer gloves, and I would make them as a friend of mine did. She ripped up a pair of old gloves, for a pattern.

Then she first cut out a pair from old muslin, sewed them up and tried them on. When she had them to fit exactly, she used them for a pattern and cut out a pair from brown linen. She wore them for driving; they could be washed and boiled; and as she had several pairs she always drove from home with clean ones.

MRS. L. HARRISON.

Peoria, Ill., Feb. 4.

[O Mrs. H.! you have closed up your article, and did not tell us whether the rubber gloves took off all the tan or freckles, or not. How *could* you omit such an exceedingly important item? and who knows what a wonderful trade might have been worked up in rubber gloves if we could only have had a testimonial from you on this most exceedingly important point? May be I am mistaken, however, after all. Perhaps it was when I was a boy that our girls used to be so exceedingly afraid of tan or freckles. Well, I hope so. If you will refer to our price list you will see that we have continually, year after year, put in a protest. For some time I refused to offer them for sale at all, feeling so sure they were not needed. Notwithstanding this protest, however, there is quite a large business in rubber gloves, indicating that they are found valuable for at least some purposes. The driving gloves, I know from personal experience, are many times worth all they cost, where one is obliged to be out in cold wet storms; and since the matter has come up, I should be glad to have some brief testimonials from a great many, especially those who continue to use rubber gloves when handling bees. For keeping off propolis it occurs to me that cheap cotton gloves might answer, and perhaps they could be bought so cheaply that we can throw them away when they get badly soiled. If the quality will warrant, they might be washed in benzine and afterward in water, as you suggest in your closing paragraph. I never have bees sting my hands unless something obliges me to handle them at a time when they ought not to be handled.]

THE OHIO STATE BEE-KEEPERS' CONVENTION AT TOLEDO.

A FEW NOTES BY ERNEST.

Very unfortunately, my note-book gives only a few and scattering memoranda of the proceedings; and, moreover, our foreman of the printing department says I must be brief, as our space is all filled up already; and then he looked at the great pile of copy on the hook, not yet set up. Our friends of the convention will therefore please pardon me if it is short. I am compelled therefore to omit a good deal.

As soon as I arrived at the convention room I inquired whether Hutchinson and Hasty were present, and I was answered by being presented to the gentlemen in question. It was a rare pleasure to me to meet the one who had in years gone by made such beautiful translations of Virgil's treatise on bees, and one whose spicy writings never fail to give delight. As for Mr. Hutchinson, he is so full of enthusiasm and practical sense, that there were many things which I wished to talk to him about between sessions and at other times. He had betaken himself to an easy seat, and very evidently proposed to have a good time. At almost every convention he has ever attended, he has acted as reporter, but this time he proposed to be relieved.

These were not the only bee-keepers I hoped to meet; but they were the ones I feared might not be present, and whose presence we could

not afford to lose. After we had had a pleasant little chat, Dr. Mason called the convention to order. We then listened to a spicily written paper by E. E. Hasty. I am unable to give the gist of it, because a summary would very inadequately give a glimpse of Hasty; but he showed very conclusively, from many instances, taken both from ancient and modern times, that honey is conducive to longevity.

In the afternoon we listened to an address by President Mason. After welcoming the bee-keepers to the city of Toledo he called attention to the fact that Ohio bee-keepers should take some action in reference to the Columbian Fair at Chicago. He alluded to the scheme that he had already made public, and published on page 58 of our issue for Jan. 15. He read a letter from J. W. Buchanan, chief of the Department of Agriculture at Chicago, in which the following questions were asked:

1. How many State associations will be represented?
2. To what extent will Canada be represented?
3. Should the entire exhibit in all its branches be installed in one department?
4. If so, how many square feet of space will be required?

To which Dr. Mason replied in substance, by number:

1. From 12 to 15; perhaps 20.
2. Largely.
3. Most certainly.
4. From 25,000 to 30,000 square feet.

A committee was appointed to investigate the matter, and make recommendations, and this committee reported, later, adopting the suggestions of the president, and recommended Miss Dema Bennett as State superintendent, under the advice of Dr. A. B. Mason.

A paper from Dr. C. C. Miller was next read, in regard to bee-laws. He called attention to the need of a few laws for bee-keepers, and referred to some that had already been enacted in Germany, in the interest of bee-keepers, and suggested the wisdom of our having something similar.

In the evening we listened to a paper on the subject of "How can honey-producers reach the trade? or, do we need a Union trade-mark?" by Miss Dema Bennett. The writer called attention to the importance of putting honey up in attractive packages, and exhibited some neat flint-glass screw-top jelly-cans. She did not recommend extracting honey from old combs, as it discolors the honey. Comb honey should be sorted in three lots. It should be appropriately labeled, and put in cartons. Put extracted up in tin pails. Every woman has a use for them. For groceries, a variety of glass packages should be used. Don't let glassed honey candy while on their hands, or somebody will call it castor oil; and don't allow the honey to get to leaking. Furnish grocery men with photographs of your apiary, to show them that the product is produced honestly. As to a trade-mark, we do not need it. Some bee-keepers would abuse its use. She recommended an individual trade-mark. Mr. Hains uses some fancy printed cards, and on these cards is an engraving of his home apiary. Consumers always know that this honey is all O. K.

In convention, the discussion that followed showed that there was a decided feeling against a Union trade-mark. It would be of no advantage to the honest bee-keeper, and might work injury to bee-keepers as a class.

J. B. Hains read an essay on spacing brood-frames, in relation to swarming. Mr. H. is the owner of from 500 to 600 colonies. He has them divided among some 13 different out-apiaries. His experience favored closer spacing. It resulted in more surplus honey and brood. Wide

spacing gave more honey in the brood-nest, but very little in surplus.

THE ADVANTAGES OF USING FOUNDATION

was the subject of a paper by W. Z. Hutchinson. It presented fairly both sides of the case, and certainly no one can say that Mr. H. was prejudiced in favor of the non or unlimited use of foundation. With foundation, he said we secure perfect combs; and if the securing of perfect combs is not the first and chief advantage, it is the next thing to it. If such combs could not be secured otherwise, it would pay to buy foundation at considerable expense rather than go without it. When he first wrote his little book he used empty frames of full Langstroth size in depth. The combs all grew at once, and he got good worker comb. In the Heddon hive, the plan does not work as well.

At the conclusion of the paper J. B. Hains and others insisted on full sheets of foundation for brood combs. Mr. Hasty argued for the non or limited use.

The subject of perforated zinc was discussed by volunteers. The opinion seemed to prevail that it was necessary in the production of extracted honey, and some even urged it for comb honey; and this brought up the subject of

BEE-ESCAPES.

Dr. Mason used the Dibbern style, and considered it a great boon to extracted-honey men. It did away with brushing combs, and made extracting much easier. In regard to perforated zinc, he must have it, because he did not want brood in the upper story. He wanted to have his extracting combs full.

In regard to wooden queen-excluding boards, Mr. Hutchinson remarked that he was probably the pioneer in their use. He said he had not discarded them because of the shrinkage of the wood, but because the bees would plug them full of wax. We was not of the opinion that those recently introduced by the G. B. Lewis Co. would prove to be a success, for that reason.

Near the close of the convention we listened to the report of the committee on statistics. It was ascertained that the average amount of honey secured by Ohio bee-keepers was 25 lbs. per colony.

Just before the close of the convention, J. Y. Detwiler, formerly of New Smyrna, Fla., begged leave to give the president of the convention a rough stick of black mangrove wood from Florida, and suggested that a good cane could be made of it. The remarkable thing about this wood was, that it was very heavy—so heavy, indeed, that it would not float on water. Mr. Detwiler requested that somebody be called upon to duly present the same to Dr. Mason. Some one called for Hasty. "What," said he, "right on the spot?" "Yes, yes," they said. Mr. Hasty stepped back, secured the cane, came forward, and then stood before the president. I wish I could give you his exact words, for he seemed to speak almost as if by inspiration, although it was evident that he had not had time for preparation. Said he, as nearly as I can recollect, "I hold in my hand, doctor, a piece of wood. Like yourself, it is a diamond in the rough. It can be made useful and ornamental. I see some blemishes in it. We all have our blemishes. I observe that it is very heavy—a quality that is indicative of its solidity of character, and a quality that is not altogether lacking in our president."

At the suggestion of Mr. Detwiler, that we take up a collection to finish up the cane, Mr. Hasty took out half a dollar, and several others did the same, and Mr. Eaton passed the hat to secure further collections.

Dr. Mason then responded in a very neat little speech. He had been president of a great

many different organizations; he had been the executive for two years of the N. A. B. K. A., but no one thing had honored him more nor as much as this token of appreciation from the convention. He would receive the cane and remember it with thanks.

Those who attended the convention will remember this as one of the prettiest things that ever happened at any convention, and I regret exceedingly that no printed page can tell it as it really was.

The convention then adjourned to meet at Cincinnati. Charles F. Muth was elected president, and Mr. S. R. Morris, of Bloomingburg, O., secretary and treasurer.

HEADS OF GRAIN FROM DIFFERENT FIELDS.

THE ARTIFICIAL-HONEY SWINDLE CROPPING OUT AGAIN.

I inclose an advertisement clipped from *The American Agent*, Dec., 1890, as I know your interest in protecting the welfare of our beekeepers and honey-producers, and your activity in showing up such frauds as it tries to perpetrate upon the public. I should be glad to see your answer in GLEANINGS. W. BINGHAM.

Chapel Hill, N. C., Jan. 19.

Thank you, friend B. Here is the advertisement referred to:

HONEY.

I have a recipe for making honey equal to bee honey. I will send the recipe for one dollar by registered letter or money order. Big profits.

F. P. HARDING, Knightstown, Henry Co., Ind.

We hardly need tell the readers of GLEANINGS that the above is a swindle and a falsehood. Nobody ever yet succeeded in making an artificial honey equal to that made by bees, or any thing like it.

IMPORTANCE OF GRADING HONEY, AND WHEN TO DO IT.

Friend Root:—Always grade comb honey when you are cleaning up the sections for market, and never, under any consideration, put a section of second-grade in your case of gilt-edge. If you do, you will find, if you ship to the large cities and your salesman finds that one section, five times out of six your honey will be sold as second-grade, causing you a loss of about 3 cents per lb. I have seen large shipments of nice honey spoiled in this way by the packer saying to himself, "One or two bad sections in a case won't make any difference." But it often makes a difference on the wrong side of the ledger. As I said before, grade the gilt-edge all by itself and the second-grade the same, and third-grade all by itself, and then you can sell each grade by the case and get your price according to grade every time. I am pleased to see friend Ball's kind offer to friend Root in regard to the shipment of honey. Let us all say with friend Ball, "I shall be more careful about assorting and packing my honey after this." P. R. CYRHERT.

New Derry, Pa., Jan. 5.

[That is just it, exactly. On the principle that a little leaven leaveneth the whole lump, a little second-grade comb honey in a case (only one or two sections) oftentimes makes the whole case go for second-grade. It isn't fair, right, nor honest to mark a case "gilt-edge," or first-grade, and then slip in one or two second-grade combs. If the dealer discovers

the second-grade sections in a first-grade case, he can hardly with fairness sell the whole case to his trade as first-grade, so he marks it second-grade, as he hasn't time to re-sort the honey.]

COMB HONEY ONLY IN SECTIONS: ALLEGED GLUCOSE HONEY.

I have been reading Mrs. L. C. Axtell's letter in Jan. 1 GLEANINGS, page 14. Toward the close she speaks of selling broken comb honey. Don't you think it a better plan to sell only honey in sections, or extracted? A lady friend was here visiting from Chicago. She said to me, "Don't let me forget to take back some of your comb honey." I said, "Can't you get it cheaper there?" She said, "Yes, but it was made stuff." The storekeeper she dealt with had it in pails, and she had bought it, and it would be a small piece of comb floating in syrup, sometimes of a different color than was in the comb, and she was sure it was adulterated. Braceville, Ill., Jan. 5. Mrs. BURR.

[Circumstances are such that a lot of broken comb honey is left in the hands of the beekeeper. He and his family can't eat it all, and it's too good to feed to the bees. The groceryman can sell it for a little below the price of comb honey in sections. What's the harm of selling it in that way? I doubt whether the honey to which your friend refers was glucosed. It was probably pure honey. Did she have any other proof than that she guessed so?]

PAINTED MUSLIN IN PLACE OF TIN: OUTSIDE WINTER CASES, ETC.

As I stated in GLEANINGS last fall, I used a good stout manilla-paper cover well painted, and they so far have kept out all the rain, and, besides, are much warmer for the bees. So far my bees are packed with old newspapers and drop cover over hives. They are in fine condition—scarcely a dead bee. In fact, I think the packing superior to chaff; and it is cheap, which is an item to most of us bee-keepers, especially after so many poor seasons.

I see that E. T. Flanagan likes the Hoffman frame, only the cost is too great. This winter I have been making a closed-end frame which answers all purposes, and is remarkably cheap. I got good No. 1 pine lath, 1½ wide, and cut it into lengths in a miter-box for ends, using wire nails for the rabbit-rest. The frames are not so smooth and nice as you make, but they are good solid frames. One bundle of lath will make ends for 250 frames, or six bunches will make 1000 frames complete.

We have had continued cold weather since Dec. 1, and 48 days of sleighing—a real old-fashioned winter. T. G. ASHMEAD.

Williamson, N. Y., Jan. 18.

[Friend A., we are well aware that paper, cloth, and a good many other substances, when painted, will answer very well; but when it comes to handling hives, drawing them on wagons, etc., they are so apt to be torn and injured that I think most will agree that it is better to pay a few cents more, and use tin. I told Ernest, when he mentioned it, that the idea was once considerably used, and afterward abandoned, years ago.]

KIND WORDS FROM A COLORED BEE-KEEPER.

Mr. Root:—I never see or hear of any colored folks who have a little home and keep bees. I have 17 stands in the Simplicity hive. I like to hear my gal read your bee-paper. I don't subscribe for it. A bee-keeper that has a big apiary loans his paper, and tells me how to get the most honey; hives four-story; no swarm.

I love to hear Jane read about Home and Our Neighbors. One white man says, "Mr. Root got no use for a negro: don't believe he will take any notice of a letter from one."

Whistler. Ala.

DOC SINGLETON.

[Friend S., your friend is very greatly mistaken in saying that I have no use for letters from our "colored friends." On the contrary, I have been more pleased to get your letter and kind words than any others that I often get hold of. May God bless you and your people in bee culture, in getting an education, and in learning to take care of yourselves. We give the letter just as it was received.]

OUR QUESTION-BOX,

With Replies from our best Authorities on Bees.

QUESTION 179. *Are bees which have been wintered in the cellar as hardy as those wintered outdoors?*

I think so.
Louisiana. E. C.

P. L. VIALLOX.

I think not.
Illinois. N. C.

J. A. GREEN.

Yes, if well wintered.
Wisconsin. S. W.

S. I. FREEBORN.

From all that I can ever see, they are.
California. S.

R. WILKIN.

I know of no reason why they should not be.
Ohio. N. W.

H. R. BOARDMAN.

I doubt it very much. They are certainly more subject to spring dwindling.
Ohio. S. W.

C. F. MUTH.

I do not know; do you? So far as I can see, they are.

New York. C.

G. M. DOOLITTLE.

Yes, sir: the bees are just as hardy. Cellar-wintered bees may have more brood than they can take care of after being set out.

Michigan. S. W.

JAMES HEDDON.

They say not. The few I have had in the cellar seemed to compare favorably with those wintered out.

Ohio. N. W.

E. E. HASTY.

I think not; but if properly wintered and cared for in the spring, they will do as well, and frequently better, than those wintered outdoors.
Ohio. N. W.

A. B. MASON.

I think so, if wintered as well. When they seem weak, something was wrong with the cellar, the food, or the bees.

Michigan. C.

A. J. COOK.

Hardly; yet there are plenty of seasons when they fare just as well as those wintered out of doors, but we occasionally see a season when a number of bees die shortly after being taken out of the cellar.

Illinois. N. W.

DADANT & SON.

Those that winter both ways the same winter can tell better than I. But from what I hear from others, those bees wintered in cellars are more liable to dwindle in spring.

Wisconsin. S. W.

E. FRANCE.

Hardier, provided they have wintered better; less hardy, provided it is the opposite. The constitution of the bee will stand a certain quantity of hardship; and when that has been endured, it dies.

New York. C.

P. H. ELWOOD.

Yes, though I once thought differently; but if put into outer cases when taken out of the cellar, they seem to do as well as those wintered out. Hence, wintering in the cellar does not seem to weaken their constitution, when treated the same as those wintered out.

Vermont. N. W.

A. E. MANUM.

Bees set out of the cellar in March may not be; but keep them in until warm weather comes to stay. One year a freeze came April 5th, and killed outright a pear-tree in bloom, and many colonies. Those in the cellar, put out afterward, were stronger than those wintered upon their summer stands.

Illinois. N. W. C.

MRS. L. HARRISON.

I don't know. I don't know any reason why not, if the air is good in the cellar. Indeed, if the air is as good—but that "if"—I see no reason why they should not be a little hardier in the cellar, for endurance of too much cold enfeebles. Still, I have an uncomfortable suspicion that, for some reason, outdoors may be hardier.

Illinois. N.

C. C. MILLER.

I understand from the question, "Are bees as hardy to withstand spring changes?" I think, after wintering in a cellar with a temperature of 50°, and placing them upon the summer stand before settled weather, the bees will not withstand changes so successfully as those wintered outdoors. The secret is, to hold them in until there is but little danger from those changes. Chaff hives might enable them to get along successfully, but I have but little faith in that plan.

New York. E.

RAMBLER.

[Well, for once we have got a question where there is *not* unanimity. It starts out, "I think so," and then, "I think not," and so on. Then it becomes apparent that locality has something to do with it. Our good friend Muth, away down in Cincinnati, prefers his bees outdoors. Doolittle thinks that, where he is, one is as good as the other. Prof. Cook agrees. Friend France, with his great big tenement hives, as I should suspect, prefers outdoor wintering. So you see it depends on the size and kind of hive. And then friend Manum suggests that, when taken out of the cellar, they should have outside protection. And, by the way, some good friend declares that the best way in the world to winter bees is to put them in chaff hives, and then carry the chaff hives into the cellar. When you carry them out in the spring they will have the chaff-hive protection. Mrs. Harrison says it depends on how late you leave them in the cellar. Taking a thin-walled hive right out of the cellar, and leaving it exposed to heavy frosts or severe freezing, is not just the thing. Dr. Miller has an uncomfortable suspicion. If he were in our locality, I think this "suspicion" would be still more uncomfortable. Rambler winds up as if he had heard what all those have said that go before him. Friend R., it must be on account of so much "rambling" that you have gathered up so much wisdom. You know about the rolling stone. Well, if you did not get the "moss," probably the *wisdom* is worth about as much.]

SPECIAL DEPARTMENT FOR A. I. ROOT, AND HIS FRIENDS WHO LOVE TO RAISE CROPS.

Our friends will notice that the gardening department is very much larger for this issue. Well, it came about in this way: Some of our older readers will remember that I have always been in the habit of becoming especially talkative in the month of February. Another thing, quite a lot of queries for this department have been accumulating under a special weight of mine; and to give us room, the printers have kindly put in eight extra pages for this issue. If there is any thing in any of my talks that you do not care to read about, you can just skip past it and take the regular GLEANINGS matter.

THE NEW METHOD OF RAISING ONIONS.

The principal expense of this new method of raising onions is the labor of transplanting. I quote the following from the new book on onion culture:

To plant one acre, we have to set 130,000 plants, as already stated. I can get boys, that, with some practice, will set from 2000 to 3000 plants a day, and nimble-fingered persons, used to garden work, will easily set 4000. The job of planting an acre is therefore equivalent to probably not less than 30 or 40 days' work, and in some cases this estimate may be considerably exceeded, but the amount of \$50.00 should be more than enough to pay for the whole job.

Now, when I read the above it occurred to me that it did not cost us much more than half the above amount, and perhaps our appliances have something to do with it. For some years we have used a tool for making the holes, which is really a long-handled dibble. Whenever a high-tempered hoe snaps off from the handle, we take the handle and shank and grind the latter down to a sharp point. This makes a dibble like the one shown in the cut. Well, although a man would space the holes very well by his eye, our small boys could not well be intrusted with this work, even if they wanted to do it ever so bad. They would get some of the holes two inches apart, and some six inches; therefore I devised the spacer shown in the cut.

A is the dibble, made of a hoe-handle. The point, being steel, is kept free from rust, and will readily free itself from dirt, providing the operator rolls it in his hand before he undertakes to withdraw it from the earth. This will be very quickly learned after a few trials. D is a hollow point made of galvanized iron. It is attached to a loose ferule encircling A by a stout bent wire. By bending this wire you can make the holes as far apart or as near together as you choose. The point B goes a little below the point A. Let C represent a hole in the ground, which is made with A. Now our boy sets B in this hole. This lets A drop down through the ferule; and by giving it a slight roll as it comes out, it leaves a hole like C, and lifts out B. Then he can go on almost as fast as he can walk, and have the holes as accurate as if made by machinery. Every little while somebody suggests a wheel with cones on the tire, so as to prick holes as the wheel rolls over. I have such a wheel that cost me several dollars. Of course, it will make marks in good soil plain enough to show you where the holes come; but it does not make a good hole to take a plant. Another objection is, that it makes so

much travel over the ground. When our ground is in nice condition, we do not want it stamped down by boys and men running over it a great number of times. The implement shown in the cut suits me best. Three boys will plant onions with a rapidity that will surprise you, and do it so well that every onion will grow, even if some of the boys are quite small. One goes along and pricks the holes. Another carries the basket and drops the onions, taken from the greenhouse, one in each hole. The last one straddles the row, going along on his knees, and firms the dirt about each onion. As soon as they get through, I would run the wheel-hoe or rake through the rows to mellow up the ground where they have stamped it with their feet and knees. After that, the wheel-hoe will do all the work, or nearly all, until your crop is ready to gather. The onions are so much ahead of the weeds that the weeds seem to be discouraged, and evidently think it is not worth while to try to overtake them.

FIXING THE BOUNDARIES OF YOUR PREMISES.

In these modern days of no fences, it becomes desirable, many times, to know just where the line runs between your neighbor and yourself. Without fences, you know we can have growing crops clear up to the line or on the line; and as we expect to work our land by horse power, of course, not only is any sort of fence an obstruction in the way of cultivating, but even a stake gets in the way, or is knocked down, etc., unless, indeed, we put in a great heavy post. But this is expensive, and is in the way, besides. Now, I will tell you what our men are putting down for corners and boundary landmarks around my high-priced lot across the way. We had some rustless iron gas-pipe, an inch in diameter, that had burst by freezing. I know we were very foolish to let it freeze and burst; but as soon as it happened I began to wonder whether it could be utilized in some way so as to be worth almost as much as it was before. Well, we cut it up into lengths of 2 and 3 feet. Then we united the 2-foot pieces to a 3-foot piece by means of an ordinary coupling. On all of our corners a 3-foot piece was driven into the ground just level with the surface. Then a 2-foot piece was screwed into it by hand. Now, in plowing or cultivating, the 2-foot piece can be screwed out until the horses are out of the way. Then take a spade and find the lower part, then screw in the 2-foot piece again. On our east boundary, along by the railway, we have put one or these iron posts every 50 feet. A 2-foot piece of poultry-netting can be run on these pieces, if need be, and this will make a sufficient barricade to protect the crops to some extent; and yet when it comes in the way of cultivating, just slip the poultry-netting off the posts, and lay it back out of the way. How many times does a surveyor have to be summoned, and expensive surveys made, to find the corner of a lot! A piece of rustless or galvanized iron tubing driven into the ground three feet will make a landmark that will stand for hundreds of years; and with this 2-foot piece screwed into the tube it can be easily found at any time. If somebody should drive over it and break it off, it would probably result only in splitting the coupling, and a new coupling could be purchased for three or four cents. In view of the many troubles and quarrels that have resulted in regard to boundary lines, will it not pay you, my friend, to put down such a landmark on every corner of your premises? Even after the surveys are made, as surveyors do not all do their work just alike, a corner is apt to be located at a different spot (unless very plainly marked) from where it was originally. This leaves the way open for still



another survey at some future time, and, may be, a quarrel.

THE EARLY PIE PUMPKINS.

Friend Root:—I don't think you half appreciate the good points of the early pumpkins. You speak of their being early, but they will keep late too. We kept some until Feb. 1 this winter. The best thing about them is their fine grain, some of them equaling the Hubbard squash in sweetness and texture. They will cook as quick too. Our folks cooked some once, and made pies and got them in the oven before breakfast. Compared with the old kind that have to be cooked half a day to get the water out, this is a great advantage. Although small there are nearly as many pies in each one, because you don't have to cook away so much water, and there are more on each vine. I got over 100 from about a quarter of a five-cent package of seed bought of you. They make the most delicious pies that I ever tasted; but there is just one trouble about them, *they won't keep!* I wish some one would tell how to can them. We have tried many times, but so far have always failed. It can be done, I know, for the canning factories do it. CHALON FOWLS. Oberlin, O., Feb. 21.

FLORIDA GARDENING.

Our gardens nearly all have cabbages here. We have plenty of new cabbages now, and will begin to ship some about the first of February, if the market is favorable then. We can keep our cabbages several weeks after they head up by taking a plow and tumbling them out just so as to stop the growth; and it will harden the heads, making them heavier; or if they are uneven in heading, we go along the row with a long-handled spade and turn partly out of root the overheaded by putting the spade down near the stalk, and prying it over. In doing this, always turn to the north, so the sun will not burn the heads. Radish, turnip, and onions, are on our bill of fare. Peas, beans, and potatoes, will be along soon. I could tell you several other things that might not be new to you, but still are worth thinking over, when we have time to reason with nature and her laws and products.

THE IMPORTANCE OF GETTING GOOD CABBAGE SEED.

I read in GLEANINGS about Mr. Passage having trouble with his pumpkins. Well, we are having far greater trouble with our cabbages. In the Early Summer (Henderson's), in my field of three acres, beginning to head, I can show all kinds named, all from the same package of seeds. The greater part are true Early Summer, but there are many like the Wakefield and York varieties, and some like the tall Drumheads. My seed came from James J. H. Gregory. I have some of his *All Seasons*. They show very little of the sport; but my neighbor's fields near me (who used the Early Summer, from Peter Henderson & Co.), show a great many varieties, or types, of them, or sports. This "*sporting*" is *very costly* to us, for many of the sports will not head up to be of any use, for some of them will be several weeks later; and, besides, there are only a very few kinds of cabbage that will head up solid here. I call this sporting "*hybrids*," or crosses of various kinds. Could not our seed-growers grow their seed isolated, so there would be no hybrids? J. CRAYCRAFT.

Astor Park, Fla., Jan. 27.

[Friend C., we have much the same trouble (with the best cabbage seed we can get) here in our locality. I think, however, that raised by our good bee-friend H. A. March has less of this sporting. Have you ever tried his Jersey Wakefield and Fottler's Brunswick? A couple

of years ago we had some choice seed sent us from Holland, that I believe gave a greater number of uniform heads of late cabbage than any thing else we have ever grown. With the wet seasons we have had, however, for two or three years back, I believe we have had *more* trouble from heads bursting than from sporting. Of course, we cut off the roots with the spade, and "unscrewed" them in the ground, so as to snap off most of the roots. In some cases we treated them so severely they began to wilt; but with plenty of rain they started out new roots, and in a week or two began to burst again. If there is a strain of cabbage in the world that will neither burst nor throw out sports, such as you describe, I presume we could pay a *dollar an ounce* for it, and make money then.]

RAISING STRAWBERRY-PLANTS FROM CUTTINGS.

The strawberry may be increased very rapidly by buds or cuttings, and this is the way I do it: Frames, nearly four feet wide, and any length desired, are made of common fence-boards six inches wide. The soil within them is made fine and level. Of course, it is rich. The surface is then covered about half an inch deep with sand, and moderately watered. Screens are needed, and I provide them by making lath frames, three feet by four, and covering them with new cotton cloth, fastened on with carpet-tacks. We are now ready for the cuttings. The best time to take them from the beds is when the dew is on; but if it can not be done then, it may be done at any time in the day by putting them into a pail of water as they are cut. They are at the right stage when the roots are just starting. If too young, failure will result; if too old, the roots are in the way. Sometimes a runner is prevented from rooting until it has several leaves, and in such a case all but one must be removed. In trimming, the runner is cut off within two inches of the bud, or embryo plant, and the cutting is thrown into water. This work must be done in the shade. It is not best to trim too many at a time. If they remain in water over night they are apt to fail to grow. When ready to put them in the frame, place a lath, or other straight-edge, across the bed, on the surface, and run a thick knife along the side of it, making a straight cut, perhaps three inches deep. The cuttings are thrust into this cut until the points from which the roots start are half an inch below the surface of the sand. The cuts should be four inches apart. The soil should be damp, but not wet enough to be puddled. If the work is done when the sun is shining, it is well to water the cuttings as fast as the rows are finished, and cover at once with screens. They must not wilt. They should be set two or three inches apart, according to the purpose for which they are being rooted. If they are to remain in the frame until sold, a month later, they need more room; if they are to be taken out and potted in a week, less will answer.

The frames need careful watching for a few days. The shades are to be removed in the afternoon as soon as the sun ceases to shine on the beds, and replaced in the morning before the dew is all dried off. It is usually well to give a moderate watering when the screens are taken off, and again before they are put on. If very hot and dry, it is a good plan to spray or sprinkle the screens two or three times during the middle of the day. If damp and cloudy, they may be left off all day. As the roots grow deeper the tops can bear more sunshine, and in a few days they will need shading only in the middle of the day. Plants rooted in this manner usually have longer roots, but fewer of them, than those grown in the natural way.

and they bear transplanting much better, having been thrown upon their own resources when very young.

Some one may wish to ask what is to be done with the cuttings that have roots when they are taken from the original bed. Treat them as cuttings, if the roots are less than an inch long, although, as before stated, they are not as good as those taken off at the right stage. If the roots are an inch long or more, treat them as plants, heeling them in by themselves in the frame, and shading and watering judiciously until they are able to take care of themselves.

The method herein described has some advantages when used with care and judgment. It enables those who sell plants in summer to save the young plants and runners which would otherwise go to waste. It enables market gardeners to have a large number of good, uniform plants that can be taken up rapidly and set where some early crop has been harvested, thus making the strawberry a catch crop. It enables horticulturists at experiment stations and elsewhere to have a large number of varieties ready for planting at the same time, and all of the same age. Sometimes we want to plow a bed as soon as the fruit is gathered, and by this method we can save the plants.

Cuyahoga Falls, O., Feb. 4. M. CRAWFORD.

FORCING RHUBARB IN WINTER.

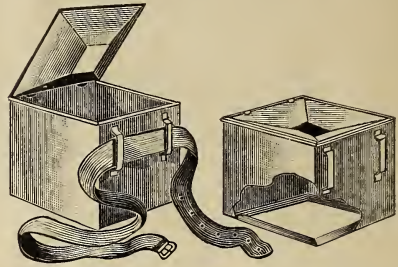
We are just now getting 15 cts. a pound for rhubarb for pies. I presume the scarcity of fruit explains why people are so willing to pay so much more than usual. By the way, we have learned a trick in forcing rhubarb. If there is any place in your greenhouse that is *too hot* for any thing else, it will be just right for your rhubarb-plants. Set the roots in very rich soil, and then cover them up with manure, either new or old—it does not seem to make much difference. Keep them constantly wet, and they will make the most astonishing growth of any kind of vegetation that has ever come under my observation. Another thing, it does not make any difference how dark it is. They will grow just as well in the dark as in the light, and you can plant them right up close to the boiler, furnace, or flues. The principal item is to get great strong roots grown in the open air, for forcing purposes. We have been buying them for about \$2.50 per 100 roots. The roots are of such size that 100 just fill a barrel. If somebody has some large roots for sale, I think they would find it profitable to advertise them. It will be quite a little time before strawberries come, and there is going to be a great call for "pie timber" meanwhile. Whenever the ground thaws so you can dig the roots out, just put some in your hot-beds, or, later, in simple cold-frames. Give them manure enough, and see what great stalks you get. If the demand is going to increase for these roots, it may be well to think about sowing seeds pretty soon, so as to have the roots in readiness for another winter.

AIDS TO BERRY-PICKERS.

Although it is quite a little time before berry-picking comes again, it may be well to consider, during these winter months, appliances that may help us to rush things when the season comes round. The one illustrated below was engraved from a machine which I saw at friend France's, in Platteville, Wis. It is especially designed for blackberries, but it may be used for raspberries, currants, and other like fruits. The cut below almost explains itself.

The apparatus is made of tin, just large enough for a berry-box to sit inside. It is held around the waist by means of a belt. A hopper-shaped cover deposits all the berries in the

center of the basket; and when they come up so as to strike the mouth of the hopper, the picker has notice that his berry-box is exactly full, with the top nicely rounded up. In our berry-picking, where they pick by the quart, there is always more or less discussion as to how full the boxes should be. Some of the little girls would heap them up so there was a fourth more than good measure; and I am sorry to say that some of the boys brought them in scarcely level full. The consequence was, the boss had to take some from the boxes picked by the little girls and fill out those brought in by the selfish and greedy boys. Boys, aren't



MACHINE FOR PICKING BLACKBERRIES.

you ashamed of yourselves to be outdone in honesty and liberality and fairness by the little girls? Well, this machine fixes the whole matter as to how full the box should be. But, most important of all, it enables the picker to use *both* hands; and with *blackberry*-bushes this is most important. Friend France says, as soon as he fitted out his berry-pickers with these machines they picked berries so much faster, that, when they came in at noon, they volunteered to drop a cent a quart on the price he had been paying them, if they could all have the picking-machines. Now, I tell you this is a pretty big testimony in favor of any implement to lessen hand labor. The bottom of the tin box is just large enough to hold the box securely. As I find the same device figured and described in our gardening periodicals, I presume such arrangements are not exactly new. The one given above, however, seems to be the most practical.

A TREATISE ON TOMATO CULTURE.

The above is the title of a little pamphlet just out, by J. W. Day, of Crystal Springs, Miss. There are three things that make this little work of special interest to me. First, it is the only book I ever saw or heard of, devoted entirely to tomato-growing; and you know I am greatly interested in any thing in regard to special rural industries. Second, it comes from the South. Our Southern friends have, as a rule, been a little behind in books on horticulture, gardening, etc. Third, the book was written by a live, practical man. Let me make a little extract from a private letter:

I have raised hundreds of acres of tomatoes, and I shall put out 100 acres this season. I am a subscriber of GLEANINGS, and like to hear you speak of your berry-raising, gardening, etc. We grow large fields of strawberries, and have a little over 400 acres in peach-trees in this place alone, besides some at other places. I am a partner of Parker Earle at this place.

Our readers will remember Parker Earle as the introducer of one of our most promising strawberries from which it takes its name. Even in Mississippi it seems they need hot-beds to start the tomatoes. The little book gives directions for making two kinds—one with a furnace with a long flue through the center of the bed, and the other made of stable manure,

These directions are exceedingly practical. At the outset one almost begins to wonder what varieties would be recommended by a grower who raises tomatoes by the hundreds of acres, and I think we will copy what the author has to say in the matter:

VARIETIES.

VARIETIES.	Size.	Color.	Flavor.	Smoothness.	Earliness.	Prolificness.	Hardness.	Total.
Acme.....	10	10	10	10	10	7	7	62
Essex Hybrid.....	10	10	8	10	7	10	10	62
Livingston's Beauty.....	8	10	10	10	10	5	5	58
Turner's Hybrid.....	10	10	7	7	7	8	8	57
Buist's Beauty.....	10	5	5	5	8	10	8	54
Buist's Prize Bell.....	10	5	5	5	8	7	10	53
Livingston's Favorite.....	8	5	5	8	8	10	8	52

It seems from the above, that friend Day places the Acme ahead of all others, all things considered. I wish he would tell us whether he has ever tested the Ignotum—probably not.

The directions for sowing the seed are exceedingly interesting, and I was specially pleased to see that the author recommends using largely what he calls bat guano. When I visited Mammoth Cave I was greatly exercised because the great heaps of excrement, from the bats that clung to the walls, lay there on the ground unused, perhaps the accumulations not only of centuries, but may be *thousands of years*. Who knows to the contrary? I questioned the guide until he became weary of the subject. I thought, and I have since been told that this bat guano has been found in immense quantities in many caves in the South. Why should we go to the remote islands of the sea when these deposits lie safely housed from the rain in the caves throughout our land? I wonder if the readers of GLEANINGS can tell me more about bat guano. Then friend Day tells us about cold-frames for the plants, made of a covering of cloth, to be rolled up on a long roller. He says that one man, by going to the middle of the bed, can roll a curtain 200 feet long. Well, I have used these beds covered with cotton cloth rolled up on a roller; but, my good friend Day, what do you do when there comes a tremendous wind, and just flops your cotton roller and all, all to bits? It is true you might roll it up, but then what happens to your plants? Then suppose the hard wind is accompanied with snow and rain. In your locality it will very likely answer very much better. In transplanting and moving plants to the field, there are a hundred little hints that none but a practical, hard-working man would ever get hold of. I have had just about experience enough to appreciate most thoroughly the short cuts that save labor and backache, given in this book. His directions in regard to transplanting to the field give us such a vivid picture of real life in market-gardening that I want to give it right here:

TRANSPANTING TO THE FIELD.

If you have a large crop and not much force, begin a week ahead, and have every thing possible ready and at hand—water at hand in barrels, hoes and spades and trowels and hand-bearers; and every thing that is to be used in getting the field ready must be ready, as a day at this time counts five days at any other time. Experience will teach you this. A little illustration will suffice here: On the 3d of April, 1884, I prepared land until nearly night, and it began to look like rain. We set a few hundred that evening. It rained that night, and continued ten days, and the plants in frames grew two feet high, and fell flat, and were almost worthless; while the few hundred I set that evening surely bore the finest crop I ever saw.

The inexperienced will ask, "Why didn't you set all day and the day before?" Frost! frost! is why; but as the 5th day of April is the limit of the frost season here, we begin to plant just as soon in April as the first frost passes, which is between the 1st and

5th. I am aware I am digressing a little; but to the inexperienced, for whom this pamphlet is written, it will all come in good.

There is a chapter on trellising, or staking, and this seems to us a very important item. The author says, if we want extra early tomatoes we must prune and stake them. If we want a great lot of tomatoes, and don't care about having them particularly early, give them more room and let them sprawl over the ground. By pruning and staking them he gets them as close as 18 inches; but where they are allowed to grow according to nature, put them twice as far apart each way.

Now, I have said so many encouraging things about the book, perhaps I should speak of some of the discouraging features, even if I do hate to do it. The price of the book is 25 cents for only 25 pages of matter, and many of the pages are not half filled at that. In view of the great value to be found in the book, we might overlook this if the grammar, punctuation, and spelling, were not so exceedingly faulty. But there is still another greater lack. The book is not illustrated at all, when it should have at least one nice picture on every page. I have advised the author to sell this edition at a low price, and get out a finer one, for there is certainly abundant need of a nice little book on growing tomatoes. I am so sure he will agree with me that I shall take the liberty of offering the readers of GLEANINGS the little book for 20 cents, postpaid.

PETER HENDERSON.

From a memoir entitled, "Peter Henderson, Gardener, Author, and Merchant," written by his son, Alfred Henderson. I extract the following from the remarks of a great and good man, and one who has certainly been a benefactor, not only to our nation, but to the world, in the line of gardening and horticulture. The first extract is taken from a magazine printed in 1866, when they were discussing horticultural patents:

I consider that man particularly unfortunate who asks a patent for what he thinks to be a discovery in horticulture, for there is a free masonry about the craft which begets a generous exchange of information; and he that holds a "secret" to himself, or intrenches his "discovery" behind a patent-right, is not usually benefited thereby.

Right in keeping with the above comes the following:

His thirst for knowledge was so strong, that, in his first apprentice days, his companions in the "Bothy" used to laugh at him for reading the dictionary at his meals. He kept at it for six months until he finished it, and then pronounced it a most interesting book, "no matter what others might say." The practical outcome of it was, that his "Bothy" companions found that, when he was through, he could spell and define any word which they might put to him. But, with all his studiousness and industry, he was not a recluse by any means, for there is ample testimony to show that, in all the frolics of the country side, he was always the leading spirit.

And again on page 37:

Mr. Henderson was not only an abstainer from liquor, but tobacco in any form he never touched. He was very regular in his habits, and simple in his tastes. Up to the close of his life he made it a rule to spend from three to four hours every day in the open air.

Now, boys, I tell you there is a big sermon in just the above extracts I have given you. As the twig is bent, the tree is inclined. The memoir I have alluded to is a little book of 48 pages, containing a steel-plate engraving of Peter himself. I do not suppose the book is for sale, but very likely the friends of our departed leader in the gardening business can have one on application.

MYSELF AND MY NEIGHBORS.

Resist the Devil, and he will flee from you.—JAMES 4:7.

If the great Father above has given me any particular message to deliver to the children of men, it is along the line of our text. I see people all around me struggling against evil—not the same sort of evil, by any means, for the thing that tempts one has no attraction at all for another; and Satan's ways of working are so diverse and so many, that sometimes I think it is only once in a while that we find two people who are tempted precisely alike. A few days ago Huber came home from school, with a remark something like this:

"I tell you, pa, Miss Smith is having almost as much trouble with the boys in the new schoolhouse as you are with tobacco among the factory hands."

"Why, you don't mean, Huber, that the boys that go to the new schoolhouse—the little ones—are using *tobacco*?"

"No, they don't use tobacco; but the trouble she has is because she can not get them to stop using bad and naughty words."

You may be sure that my heart went out in sympathy for my excellent, hard-working friend who is principal of the four juvenile classes in our new schoolhouse. After prayer-meeting was over one evening, I mentioned to Miss S. the report Huber had given.

"Well, Mr. Root, I am very much obliged to Huber for his sympathy, if for nothing more. We four teachers have been having a real time with this matter of profanity and obscenity; and it has obtained so persistent a hold among some of even the very small boys, that we are almost at our wits' end. I do wish you would come down and see if your influence in addition to ours may not amount to something."

Not very long after this, a little note informed me that they would be very glad to see me at three o'clock that afternoon. I went, and was ushered into one of the rooms, for school was just closed, and pretty soon eight small boys came in slowly, with downcast eyes and sad countenances, evidently expecting punishment or a severe reprimand which they evidently felt they deserved. Miss S. remarked that these were the ones who seemed to do no better, even after they had been repeatedly admonished. For a little time all was silence. I motioned them to take seats, and I sat down as near as I could well get to them. As I looked into their faces I inwardly prayed for wisdom to get a real strong hold on those little hearts—yes, even though Satan had already made sad inroads therein. I remembered my hobby about getting acquainted, and in fifteen or twenty minutes I felt happy to see them not only listening to all I had to say; but before I got through, they asked me questions, a great many of them. My prayer had been answered. They looked up with fear when I first came in, but we were now all on very friendly terms. They had given me a promise to try harder to resist evil; and when I told them that God heard that promise, and asked them to kneel down while I prayed that he would help them to keep it, every boy knelt down by me; and during my brief prayer you could have heard a pin drop. Their ages ran from seven to twelve. The youngest said, in our confidential talks about the matter, "Mr. Root, I can keep the bad words back without much trouble unless something gets me real mad, and then I can't help it. They will come." May God bless and help this poor child of seven! I told him that great big men had exactly the same experience he had,

and that some of them, with all their strength of mind and muscle, did not succeed much better than he did. They told me, too, about big men who set a bad example, and, without knowing it, perhaps taught them these bad words. I promised them that I would talk to the big men too, and I have commenced it. I exhorted them, in the language of our text, to keep these words back, and hold them in with all their might. I explained to them, that, although it is bad and wicked, even to think "swear words," it was a hundred times better to keep them back and not let them out; and I told them that, if they kept them back resolutely, by trying real hard, by and by the bad thoughts would step out, and I unconsciously preached a sermon for myself at the same time. Resist the Devil, and he will flee from you, my good friend. I asked the boys about their mothers; and, oh how I do wish I could see these mothers, and have just such a little talk with them! I would admonish them to whisper a kind helpful word in the ear of these precious boys of theirs, just as they start for school; and then I would exhort the mothers to be on the watch when school is out; catch the anxious, restless chap in your arms for just a minute, and ask him if he has kept the promise that he gave you in the morning, to refrain from bad words. Oh! if you will do this, dear sister, the schoolteacher will not feel her labors are like casting pearls before swine. I know of a mother who fought Satan long and faithfully, right along on this line; and, with God's help, she triumphed. Her boy is now superintendent of a Sunday-school, and doing what he can for a great lot of just such urchins as he was a few years ago. After the boys had gone I asked to see all the teachers. I sat down with them and exhorted them to be not weary in well doing. In speaking of the parents, Miss S. told me that she sent a note home by one of these same boys—the oldest one in the lot, in fact—a note to his mother. Shall I tell you what the mother did? She gave the boy a tremendous whipping—a whipping so severe that my good friend told me she felt almost afraid to report to the mother again. Perhaps the poor mother thought she was doing her duty. May be she had tried other means; but, O dear mothers, please believe me when I tell you that with these other ways I have told you of, where followed up faithfully, week in and week out, I am sure the whipping could, at least in most cases, be omitted entirely. Very likely punishment is necessary, but I begin to fear that it is given only when the parent is off from the track, as well as the child. When weeds become so large that they can not be killed with a rake, we must take the hoe and chop them up; and sometimes, after very long neglect and procrastination, the only thing is to take the scythe and mow them off. Do you see the application, dear father or mother? and do you know by experience how much better and happier a parent feels who has conquered by love instead of the rod? Why, we got so well acquainted in just that little visit with the boys that one of them said, as I told him he might go home, "Why, Mr. Root, I go to your church. Didn't you know it?"

I told him I had seen him at our church, and I was very glad he did go; and I told them, in leaving, that I should watch for them when I passed them on the streets; and I hoped to catch a pleasant look from each and every one of them, assuring me they had kept the little promise given that day to me, before the great God above.

A few months ago a young man applied for employment, and remarked that he had worked at the machinist's trade some. As we were in

need of a machinist I talked with him more than I usually do, and his manner and appearance pleased me so well that I set him at work. He did not use tobacco nor bad language, and was not intemperate. His brief history illustrates the point I have mentioned in my opening remarks (that our temptations are unlike). He seemed to be a steady, faithful man; but before he had been with us many weeks I heard he was borrowing money of the hands, and getting into debt for things around town. Then somebody said he was going to get married, and bring his wife to our place. Well, about a week ago he *did* get married, and he married a girl (or child rather) only *fourteen* years old. In order to get a license he took oath that she was of age, and he is now in our county jail for perjury. Almost as soon as he came among us, some of our hands found out he was not a Christian; but he seemed so good natured, however, and willing to join in every thing good, that, before the event mentioned above, he had united with one of our Medina churches. When I visited him in jail he was bowed down with grief and shame. He put his head on my shoulder, and wept so he could hardly speak. I told him he could give better proof of his penitence, if it were *really* genuine, by dropping the past and turning in *real earnest* to Christ Jesus for help. I assured him that the Bible promise, "Come unto me, all ye that labor and are heavy laden, and I will give you rest," was true in every minute particular, and that it was open to every human being, under all circumstances, and *especially* to the sinner. But I told him there was no help from Christ Jesus, nor from his friends here in Medina, unless he told the *honest square truth* from beginning to end. He promised most earnestly to do so. He had been engaged to the young woman for only three or four months, and I asked him why he could not wait until she was of proper age. He replied that he thought so much of her that he could not bear to be away from her, and that most of the money he had borrowed was to hire livery rigs to go and see her. And yet at this time he had been paying at least *some* attention to two or more young women here in Medina. He said he did not think of there being any thing particularly wrong about it. Now, boys, I want to say a word to you right on this point. The man or boy who is engaged to some girl or woman should behave himself toward all other women exactly as if he were married. Of all the solemn engagements in this world, none should be held more solemn and sacred than the promise between two to become man and wife. God sees as the world does not see; and he who resists not evil in this line will surely repent it. "Whatsoever a man soweth, that shall he also reap." The relation between man and wife is sacred and holy, and the vengeance of a just God will come down on the head of him who trifles with this relation. Let me whisper to my young friends of both sexes, to be careful and cautious about making these engagements, as perhaps nothing else in this world can so seriously affect one's whole life. But after having once made it, let it be a sacred and solemn compact made before God. It is a serious thing for anybody to trifle with such an engagement; but ten times more so to the one who professes to be a Christian.

I next spoke to our young friend about his habit of borrowing money from people on short acquaintance. Let me put in a warning also, in regard to foolish extravagance and its attendant, getting into debt, or borrowing money. Of course, there are circumstances where it is right and proper to borrow; but for one who is supporting himself by daily wages, and who is

liable to have his income suddenly cut off by sickness or other vicissitude, to borrow money for the purchase of things he could get along without, is not only folly, but it is sinful; and it is also wrong to lend money to such a one. There are more or less of these shortsighted, foolish individuals in every community, and when pay-day or Saturday night comes, these individuals are always wanting to borrow from their comrades. Believe me when I tell you it is a Christian duty and a kindness to such to speak right out squarely, "No, sir. I have no right to lend you this money, and you have no right to borrow it." Such a reproof is the kindest service you can do them. I know it is not always taken as a kindness; but I can look back now, and thank from the bottom of my heart the friends of my boyhood who were friendly *enough* to refuse me, and to point out to me the folly of my request. Now, do not think unkindly of the one who refuses to lend you money or to trust you for goods. Very likely he is not only the wisest but the very best friend you have.

I told this young friend I felt sure that this was a bad habit that had grown upon him little by little. I do not like to compare sins; but giving way to such a temptation is perhaps fully as damaging on community as either swearing, tobacco, or whisky. He declared to me that he had never been guilty of this sin before he came to our town—that he was square with the world, and owed no man except in Medina; in short, that he had resisted the Devil until he came among us. I could not believe it all. Sins like these are invariably of slow growth. The seed must first be planted, and the weeds allowed to grow for at least a time before it results in open crime. He declared to me most positively, when I asked him the question point blank, that he had never been married in his life, and had never been engaged, even, to any woman before his engagement and make-believe marriage with this child. I say "make-believe;" for he was arrested within a short time after the ceremony was performed, and the girl was sent home to her parents, with the information that she was not a married woman at all—that the marriage was null and void. I was greatly astonished to hear, when he came to be examined, that he has a wife living in an adjoining State. Now, notwithstanding my earnest talk—notwithstanding his earnest protestations that he was trusting in Christ Jesus, he had not the courage to confess to me the whole truth.

Although this young friend did not tell me so, I am afraid he has not been resisting the Devil; and the evil one did not come to him through tobacco nor strong drink, nor, perhaps, an uncontrollable temper. But for all that, the result was just the same. O friends, I wish I could impress upon you the importance of resisting Satan's whisperings at the very *outset*; and believe me, I beg of you, when I tell you that he *will* flee from you if you only *hold on*. Don't give up; don't become tired; don't say, "I can't stand it any longer." These trials are the turning-point between life and death. They settle the question between light and darkness—between sorrow and joy, and grief and gladness. These struggles with sin are for *your own good*. They will work out *glorious* things for you if you only overcome. You can not be great and good, and wise to help others, unless you resist and hold on. Stand steady and be brave, until the evil one lets go his hold and gives up and says, "That chap is bound to be good. He is so firmly planted on the rock Christ Jesus that we might as well give him up." And then, oh what joy comes to the poor persecuted sinner when Satan flees away!

EDITORIAL.

Blessed are the pure in heart, for they shall see God.—MATT. 5: 8.

We are obliged to add eight extra pages this issue.

ESSAYS AT CONVENTIONS.

SHORT, pithy, well-written essays, suggestive of several good points, are always in place at conventions: long-winded ones, never. A long essay, however, may be valuable in proportion to its length. But it taxes the nerves a good deal more to listen to something read than something given off-hand, in animated conversational style.

THE PRESIDENT OF THE N. A. B. K. A.

MR. ELWOOD is not only a successful bee-keeper, a refined and educated Christian gentleman, but he makes an excellent presiding officer for a bee-convention. He has a happy faculty of summarizing the *best* points brought out by the discussion; and when the discussion becomes a little lopsided he is pretty apt to call out the other side, although that side be against his experience and sympathies. He will make a good presiding officer for the N. A. B. K. A. next fall at Albany.

CLOSED-END FRAMES IN A TIGHT-FITTING CASE.

ON page 161 it is suggested that friend Heddon includes this idea in his patent. I trust this is a mistake. Closed-end frames in a tight-fitting case were exhibited on the Ohio State Fairgrounds more than twenty years ago. Another man had a patent on a similar arrangement on the Centennial grounds in Philadelphia, in 1876, and somebody has been inventing it and bringing it out every little while ever since Langstroth brought out movable frames.

A. I. R.

THE GRIPPE AGAIN, AMONG THE BEE-KEEPERS.

It has had a little run here at the Home of the Honey-bees, but for the present it seems to have released its hold. We are just in receipt of a letter from Dr. C. C. Miller, and he says: "I am pretty badly used up with the grippe. Mrs. M. has been still worse, and mother Wilson is getting over the pneumonia. Em is laid up with a sprained ankle." Well, well, doctor, you have been having misfortune in your household. We extend to you our sympathies, and are glad to know that you are improving.

DADANT'S LANGSTROTH IN FRENCH.

WE notice, by the last *Revue Internationale*, that this great work of our esteemed and celebrated co-laborer is at last ready for the French-speaking people of the world. It will be ready for sale on the first of March, just as this reaches our readers. We are informed that this will not be simply a word-for-word translation, but an adaptation of the book as a whole to the people of France, Mr. Dadant's native country. We predict that it will create a great stir if not a revolution in at least some districts of France. We have not learned the price of the book here in America. The price is 7½ francs in Nyon, Switzerland, at the office named above.

MR. THOMAS PIERCE AND FIXED FRAMES.

It was our special pleasure to make the acquaintance at Albany of Mr. Thomas Pierce, an enthusiastic bee-keeper of Gansevoort, N. Y. He is a slim six-footer, and quite fills the bill as given us by Rambler on page 437, 1888. Said

he, "So you are interested in fixed frames?" We meekly admitted that we were. "Well, you will find that not all of our York State bee-keepers use them. I don't, and some others don't." We were about to ask the reason, when somebody desired a hand-shaking, and the matter dropped where it was.

A CORRECTION.

FRIEND SEGELKIN, whose article on grading honey appears on page 134, calls attention to the fact that the words "*Not white honey*," under the head of "Grading Honey," should be "*No, 1 white honey*." He says, "No doubt it was the writer's fault;" and as it passed the eyes of all here as it appears in print, perhaps the fault was not wholly ours. A second inspection of the manuscript shows that the word "not" was plainly written, but the *t* was not crossed. The omission of the period after "No." is what caused the whole trouble.

PRECONCEIVED NOTIONS.

WHAT a lot of trouble this commodity in human nature makes us sometimes! We figure out in advance whether a thing will or will not work. Our experience with bees has been such that we are morally certain that we are not deceived, and we try hard to make all our experiments come out so as to favor our views. With enough bias of opinion we can make out a pretty straight story for or against the idea; but when such are reported it costs the fraternity much. Let us be unbiased, and ready to have our old notions broken down when facts and subsequent experience warrant it.

HOW TO KEEP BEES AWAY FROM WATERING-TROUGHS.

AMONG some of the good things we learned at Keokuk last fall was a little hint worth remembering, from A. N. Draper. He is an extensive honey-producer—a man who owns several out-apiaries. Said he, "People have had a good deal to say about keeping bees away from watering-troughs. I will give you a secret that is worth them all. Take a weak solution of carbolic acid, and paint it around the edges of the trough, and then they won't bother your neighbors. If you get them out of the habit of visiting such places, they will stay away." We have used enough carbolic acid in the apiary to feel pretty tolerably certain that this will work. Put this down in your note-book, and try it next season and report.

BEE-KEEPING IN RUSSIA.

THE official report of the Petrowsky Agricultural Academy of Russia has just been sent us, through the kindness of P. Kuleshoff, Professor of Agriculture in that institution. The document is devoted to apiculture, and gives a general summing-up of bee culture in this country and England, in order to show what the Muscovites themselves can do if they try. Although our early education in Russian was somewhat neglected in our school days, we have succeeded admirably in translating some of the *pictures* into plain English; and these, together with some columns of figures, which seem to add up just the same in both languages, give us a very good general idea of the nature of the book, which is admirably printed—rarely equaled by our own government documents. We see the familiar name "Root" turns up in Russian as Pyta (what a pity!) but the pronunciation is the same as in English. Friend Gravenhorst appears under the *nom de plume* of P'apenropet. Seriously, we shall be glad to hear further about the growth of apiculture in

Russia, and hope that friend Kuleshoff will write us an article on the subject, for we feel sure it would be very interesting.

W. E. CLARK'S PICKLE STORY: WHY EXTRACTED HONEY SOMETIMES DOES NOT SELL.

AMONG other good things given us by W. E. Clark in the convention at Albany was what we will call his "pickle story." A groceryman had had for a year or so half a barrel of pickles under the counter. A new clerk was hired; and, seeing the pickles, asked if they were sold. His employer replied that they were a drug on his hands. The clerk very modestly volunteered the information that he could dispose of the whole lot in a few days. The employer told him to go ahead. The clerk procured some nice square bottles, filled them with pickles, corked them, neatly labeled them, and, last of all, he put them in a conspicuous place, and, presto! they went off like hot cakes, at a good big price. Said Mr. Clark, in moralizing on this point, "The customers did not know that the groceryman had pickles for sale; and even if they did, they did not have some neat packages of them *constantly* in sight as a reminder of the fact that these things were for sale. That is just the trouble with extracted honey in many of our groceries," continued Mr. Clark. "It is sent to the groceries in bulk, and then they are *not* supplied with attractive packages to exhibit the article; and many times, if supplied, the packages are allowed to become fly-specked, and the honey to become candied." It should have a neat, clean, and fresh appearance. If people do not want to buy it in packages, let them have it in bulk, but let them see that honey is for sale in attractive glass packages. They make the best sign.

THE HAPPIEST MOMENT OF A BEE-KEEPER'S LIFE—A LITTLE ADVICE TO THOSE WHO DON'T READ BEE-BOOKS.

THE happiest moment in a bee-keeper's life is not when he becomes the father of a newborn babe of flesh and blood (although that is a supreme moment, so it is said), but it is when he becomes the father of a baby in the shape of a *new-fangled bee-hive* that is "warranted to revolutionize bee-keeping in the near future." Very proud he is of that baby for a while, and jealous is he that no other shall try to snatch it away from him, and he gets the United States courts to protect him. But his "baby," after a while, does not come up to his expectations. Somehow, as the years go by, it doesn't take to the *bees*, and the bees don't take to it. The ultimate result is, that it is piled up in the back yard, along with a lot of others. Almost every beginner has been through the experience; but sooner or later he repents, buys a good bee-book, and starts right. There is lots of fun in inventing a hive that will beat any thing ever before heard of. But we urge, *don't*. Don't waste any time or money until you have thoroughly read the A B C of Bee Culture, or, in fact, any standard text-book on the subject. About every week we receive a letter from one who has got a hive, the special features of which he is not yet prepared to divulge, but which he is *sure* is something far superior to those devised by the "fathers" of bee-keeping. By and by, when it is divulged, a little inquiry elicits the fact that it is older than the hills, and a little better than the "old log gum;" and that the happy (?) inventor has not even read a bee-book.

LAYING OUT AN APIARY; SEASONABLE HINTS.

It is about time now that we should be thinking of locating our apiaries. Experience has shown that we can not afford to go to any great

expense in providing suitable shade. There are plenty of locations that afford shade naturally for at least a part of the day. A young orchard is an excellent place. It may be well enough at our home yard to go to considerable expense in putting up grapevines or other shrubbery; but it certainly will not do for an out-yard. Experience has shown, in many instances, that a yard that has in years gone by furnished tons of honey is now practically worthless, or so nearly so that the moving of the bees to some location more favorable is a necessity. For instance, four or five years ago an apiary furnished an abundance of basswood honey; but the basswoods have all been cut off; there is no clover, and the field is worthless. Again, a locality has once furnished immense quantities of white clover; but extensive agriculture has set in, and clover pasturage has given way to immense wheat-fields. The inroads of civilization sometimes damage the honey-bearing resources of a locality; and, conversely, sometimes make them more valuable. There are a few locations in York State that formerly gave but very little honey; but the farmers, in recent years, have introduced buckwheat to such an extent that these are now splendid buckwheat countries; and the yield of this dark rich honey plays a considerable part in the net profits of the season. In a word, we want our apiaries so we can load them up at a moment's notice, and move them at practically little expense to any new field that may be more inviting. We can not always tell at first whether it will be a favorable location or not. If it does not come up to our expectations, we can "pull up stakes" and try elsewhere again. If you can locate near swamp land you are fortunate.

W. L. COGGSHALL'S EXTRACTOR; COMBS HANGING IN THE BASKETS THE SAME AS IN THE HIVE.

IN between the sessions we had a very pleasant visit with W. L. Coggschall. He is one of the largest honey-producers of York State, and runs for extracted honey almost exclusively. Said he, as our conversation turned to extracted honey, "I do not like your extractor."

"Why?"

"Because the combs do not hang in the extractor-baskets the same as they do in the hive."

"Why, that makes an extractor so cumbersome and awkward," we interposed.

"Not at all," said he. "My can is only 30 inches in diameter and 30 deep. The baskets are made to take the combs just as they hang in the hive, and will hold four frames at a time. When I pick a frame out of a hive I do not have to turn it over endwise, and let it down into a deep basket. I pick it up just as it comes out of the hive, and put it squarely into the machine. In reversing the combs there is another advantage. Combs pick up easier, and go back into their respective places with less trouble. Why," said he, "I can not begin to extract the amount of honey with one of your extractors in a day that I do with one of my machines, and I have tried both."

"What gearing do you use?" we asked.

"The upright."

Mr. C. has the reputation of producing immense crops of honey, and he also runs, in connection, a farm; and with the help of one assistant he does the work alone, practically. We have not had calls for an extractor to hold the Langstroth combs as they hang in the hive, to any great extent. We are quite willing to make whatever bee-keepers want, although it should be remembered that such an extractor would cost more, and very possibly would not please some as well.

Our subscription list is now 10,097.

WHO IS RAMBLER?

We will tell you in our next issue, and give you one of those beautiful half-tone portraits of him.

"DOWN BRAKES!"

A most excellent article appears from the pen of L. C. Axtell, on page 169. We commend it to the thoughtful consideration of every reader who is interested in new developments.

CHALON FOWLS.

We have just had a very pleasant call from Mr. Chalon Fowls, of Oberlin, O. He is one of those enthusiastic and thoroughly practical bee-keepers whom it is a pleasure to meet. He is so full of bee-lore that *even an editor of a bee-journal* may get some new ideas in talking with him.

REFRESHING RAINS IN CALIFORNIA.

The following little gleam of news comes to hand from one of our California subscribers:

Our long drouth in Southern California is at last broken by a most refreshing rain of $3\frac{1}{2}$ to 4 inches at this place. Of course, we feel wonderfully thankful, for it not only puts our honey prospect on a good footing, but almost insures a general variety of crops.

ALLEN BARNETT.

Whittier, Cal., Feb. 17.

SECTIONS MADE OF RED WOOD.

Mr. J. W. UTTER, of Amity, N. Y., sends us samples of sections made of red cedar. The wood is of a reddish-pink cast, and has the characteristic odor of an ordinary leadpencil. Mr. U. says these sections set off the honey, and make the combs look whiter. By the way, wouldn't that strong odor of red wood rather give a flavor to the honey? It would be like making butter in a new cedar churn. The butter would surely taste of it.

TWO MORE NEW BEE-JOURNALS.

The first one, a monthly, hails from Berlin Falls, N. H., and is entitled the *White Mountain Apiarist*, and contains 12 pages. The second has 16 pages and a neat tinted cover. It hails from San Francisco, Cal., and bears the name of the *California Bee Keeper*. This latter is very neatly and tastily printed. Let's see: Mr. Newman, of the *A. B. J.*, a few weeks ago counted up five new bee-papers for the new year, and here are two more—seven in all. Still there is room. Next!

P. S.—One of our compositors suggests, on seeing the above, the wisdom of starting an obituary department for bee-journals. Two have already suspended publication within two months—not of the number, however, of the new year. We were not mean enough to think of such a thing; but, say, if the new publications continue to start up at this rate we shall have to have a department of "New Bee-Journals."

THE EDITORIAL "WE" IN THIS DEPARTMENT.

Our readers will observe that we have been employing the plural form of the personal pronoun in this department, in spite of the fact that Dr. Miller has urged in the *Bee-Keepers' Review* some very good reasons why the singular form of the word should be used. We like the personality of "I," but do not see how we can consistently use it with justice to other members of the Home of the Honey-bees who use their brains. E. R. R. dictates most of the editorials; but while in most cases the editorials are the expressions of his own opinion indi-

vidually, they are also very often the expression of three or four in our establishment. For instance, take the matter of using square kerosene-cans for shipping California honey. E. R. R. consulted Mr. J. T. Calvert, business manager, and the shipping clerk in the express department, as well as several of the boys who have to do with the handling and testing of the honey in these oil-cans. Now, we can't very well say *he* did so and so; but we could say with truth that *we* did. Very often an editorial is suggested by our superintendent, and an opinion is rendered by him; and E. R. R., in conning it over, digests it and finally gives it to the stenographer; and it very often happens that as he takes it down he suggests some other ideas. E. R. R. fears that, if he were to use the singular pronoun, he would be unfairly credited with an unusual amount of wisdom; and if it seems necessary, for one reason or another, that the individual personal "I" should be used he adopts it, and then he signs his initials. For instance, if he picks a bone with Mr. Heddon, the latter knows who is responsible for the statements.

GRAND RAPIDS LETTUCE. ETC.

It is refreshing to notice that my two children in the line of garden products, namely, Grand Rapids lettuce and the Ignatum tomato, are taking such prominent places in the seed catalogues of the world. Perhaps I should say the two children I *introduced*, for of course I did not originate either of them. I believe that few or none of the catalogues give me any credit for my efforts in that line; but so long as they have met with great favor, I do not know that it matters. I omitted to mention that our friends at the Experiment Station, at Columbus, have made some very careful experiments to determine how much of an improvement the Grand Rapids is over its parent, the Black-seeded Simpson, large beds of which were in their greenhouses, side by side. The Grand Rapids shows a marked superiority. It has a better color, and will keep longer out of ground; so the claims that our friend Eugene Davis made for it are certainly honest and deserved. By the way, quite a few do not seem to understand that the Grand Rapids lettuce is just as well calculated for outdoor culture as in the greenhouse. As it does not form a head, however, a good many prefer the Boston Market or Henderson's New York for growing in the open air.

A. I. R.

HUBER LEARNING TO READ.

As the young hopeful is now nearing seven years of age, and has never heretofore manifested any special liking for books, I began to be a little surprised. If he is going to be a chip of the old block, thought I, he must pretty soon begin to get a glimpse of the wonders this world has to offer, especially in the line of literature. Well, about a week ago he took a great fancy to a book called "Bible Pictures, and what they Teach us;" and before we knew it he was spending all his leisure time poring over its pages. When Sunday came, of course there was no reason why he should not continue, with *such* a book. His favorite attitude is to spread the book and himself on the floor, in the center of the room. In this way he can change his position, and sprawl out first one way and then another, and thus he keeps it going. After dark he has a big bright lamp down on the floor by his side. I was a little curious at first to see what book he had selected among the multitude of books that are to be found almost everywhere. The book is the work of the author of Story of the Bible.

A. I. R.

A NEW METHOD OF TREATING DISEASE WITHOUT MEDICINE.

WATER CURE APPLIED INTERNALLY AS
WELL AS EXTERNALLY.

Wash ye, make you clean.—ISA. 1: 16.

With the present amount of interest in this matter of internal bathing, or the use of the "drugless remedy," as it has been termed, I feel as if I could no longer keep still consistently; and even though the subject I take up may seem to some an indelicate one, when we take into consideration the amount of human suffering that may be relieved by it I think we are excusable for talking plainly, and even using very plain terms, in print. In Titus, 15th verse of the first chapter, we read, "Unto the pure, all things are pure; but unto them that are defiled and unbelieving is nothing pure; but even their mind and conscience is defiled."

One reason why I feel moved to take the matter up to-day, and make it as plain as I know how, is that so many are, at the present time, *making capital* of selling one of the uses of pure water, to their fellow-men, as a *secret*, as if it were right or proper to receive money for telling how to make use of God's gifts, such as pure water, sunshine, pure air, etc. It seems sad to me that at least a *part* of the world should be stumbled over such a simple matter, or should imagine it right to keep from our neighbors a knowledge of a plain, simple plan of removing suffering by the use of water; yes, water, and nothing else. If any one should feel like questioning my authority or my moral right to make this secret free and public property, I will quote, at the outset, from a little book published by Fowler & Wells in 1847.

The book referred to is "The Water-cure Manual," by Joel Shew, M. D., copyrighted in 1847, printed by *Fowler & Wells in 1850*. Speaking of these injections Dr. Shew writes:

"They may be repeated again and again, in as great quantity as desired. . . . A good mode, too, is to take a small injection, a tumblerful, more or less, that is retained permanently, without a movement before morning. This is very soothing to the nervous system; aids in securing sound sleep, and, by its absorption in the coats of the bowels, dilutes acrid matters therein, tonifying and strengthening likewise those parts, and aiding materially in bringing about natural movements."

After naming various diseases for which this remedy is invaluable, he says:

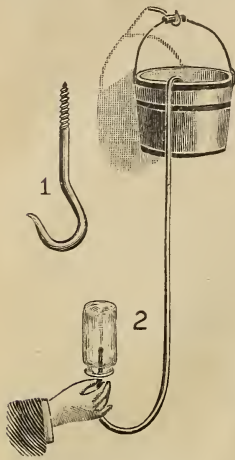
"This statement will cause sneering, I know; but it is no fancy sketch. The thorough washing out, so to say, of the lower bowels, by which the peristaltic, or downward, action of the whole alimentary canal, is promoted, and by the absorption or transudation of water its contents are moistened and diluted, and the whole of the abdominal circulation is completely suffused by that blandest and most soothing of all fluids, pure water. Whoever understands well the sympathies and tendencies of these

parts of the human system will at once perceive the truth of what I affirm."

The above, you will notice, contains the whole of the secret—or, at least, so much of it that no reasonable individual can pretend to call it new, or a real discovery of the last few years. Our older readers will remember vividly the time when Fowler & Wells created such an excitement throughout the world by what they accomplished by the use of water and nothing else—water used hot or cold as the occasion demanded, or lukewarm. Vapor baths also was another form of using hot water. While, perhaps, all the claims made fifty years ago have not been fully realized, yet I feel sure the world has been made better as well as *cleaner* ever since this water-cure excitement. At different times the use of water in large quantities, taken into the system by way of the mouth, has had its advocates. Dr. Salisbury for many years has been accomplishing a good deal by "feeding" his patients on *hot water*. We have all seen painful sprains and bruises cured almost as if by magic by the use of water as hot as the patient can bear it. If you want to get out a corn, first soak your foot in hot water; and many surgical operations can be performed with comparative ease where hot water in *sufficient quantity* applied for a *sufficient length of time* is used to relax the muscles and to soften the skin and flesh. Physicians have for ages (for aught I know) used water, both hot and cold, in the form of injections; and the wonder is, at the present time, that they have been working so close to a great discovery, as it has been called, without realizing the wonderful things to be accomplished right along in that line. Perhaps my good brethren of the medical fraternity feel like smiling a little at this last remark of mine. Well, smile if you like, my good friends; in fact, I rather think you had better smile, for a world of suffering people are beginning to smile right along on this line, and we are *going* to smile and have more vigor and energy to thank God for this new gift.

As near as I can make out, the discovery consists in using more water—perhaps hotter water in some cases—and using it for a greater length of time. If we wish to wash a jug, it is an easy matter to make the outside very clean. We can use hot water, soap, and ashes, if need be. We can rub and scour dirty spots; we can use a brush and a cloth, and some sand, if need be, but not so with the inside. You can pour in hot water and pour it out again. You can put in soap and ashes, and shake the jug vigorously, and you can put in water again and again, until you judge by what comes out that it is clean enough to be used for food. Well, this matter of internal bathing is a good deal as it is with the jug. We want lots of water; and in order to perform its office thoroughly, it may be necessary to let this water remain for some time, just as we let it remain for some time in the jug, that it may soak up and loosen accumulations on the sides, where no man can see. After this soaking-up process, a vigorous shaking will probably do much to remove

every last vestige of accumulation. A customary way of introducing hot water into the human body is by means of a rubber tube and a little pump, or ordinary syringe,



APPARATUS FOR INTERNAL BATHING

such as we find in great plenty at our drugstores. But I have found something not only very much better but even cheaper; and this little picture will, I think, make it all plain.

Fig. 1 represents an ordinary screw-hook, made of heavy wire, such as you get at the hardware store for two or three cents. This is to be screwed into the wall so as to support a pail of water. Instead of hanging the pail as in the cut, however, I would turn the hook a quarter

around and hitch it on to the pail at the ear right where the bail is attached to the pail. The rest of the apparatus is simply a piece of rubber tubing ($\frac{3}{4}$ inch, outside diameter) about five or six feet long. Twenty or twenty-five cents would cover the whole cost of the apparatus. Where the rubber tube goes over the side of the pail, it must be kept from slipping by means of a little wire staple put across it; or you can, if you choose, tie it by a string at one of the ears of the pail. It should go inside of the pail so as to reach to the bottom, that it may take out all of the water. To start the water, throw the tube in the pail, so it sinks clear under the water. Now take hold of one end; and as you do so, pinch the sides of the tube so as to close it. Bring it over the outside of the pail, and the water will run off of itself. If you bring it down below the pail, as shown in the cut, the water will be thrown from the end of the tube with considerable force; and it is just right to wash out a jug, bottle, or any thing else, for the force of the jet will make it strike every part of the bottle. Now, you are to cleanse the human body just as we wash out the glass jar in the figure. Please bear with me now, friends, a little, even if I speak very plainly, in order that those who are awkward with such appliances, just as I was myself six months ago, may have no trouble in managing the matter. When I spoke to my mother about it, a few days ago, she said, more than 50 years ago she saved the life of a neighbor in just this way when no physician could be obtained. The doctor told her, when he arrived, that the woman would have been dead before he reached her had she not used this simple remedy. The only difficulty about the operation is in introducing the end of the rubber tube into the body; and this, I suppose, would be an impossibility with the average patient did we not depend upon the good offices of the

hot water before mentioned, in its power of relaxing the muscles. The pail should be at least two-thirds full of water, and I would have it about as hot as it can be and permit you to hold your hand in it. Now let this stream of hot water play for a little time against the external part of the organ that ordinarily closes itself involuntarily by muscular contraction. In a very brief time the hot water will have the effect of relaxing the muscles, and after the pressure of the water has forced a little of the liquid through the opening, all difficulty in that direction has disappeared. The question naturally arises, "Is there no danger of injuring the delicate machinery of the human system?" I am sure there is none whatever. The more water you can get into the colon, as physicians term it, the better. More of this, however, anon. I am told by members of my own family, however, that not every one can use a simple rubber tube as I do. In that case, put on the end of the tube a hard-rubber nozzle, such as is used on an ordinary syringe. I presume different people will need to vary the plan somewhat. But I have never heard of anybody yet who did not succeed finally in getting the water to fill the colon in a satisfactory way. Introduce as much water as possible. Two quarts is better than one; and if you can store away a gallon you will probably make more effective work than with a smaller quantity. If it persists in bursting out, use a cloth or other means to restrain it. I would first wash the colon clean from every thing it contains. Get out every thing that can be made to pass out with the water; then fill up again with clean water, retaining it while you walk about; or if there is difficulty in removing all accumulations, get some friend to roll you and shake you, kneading the bowels, if need be, the same way I spoke of in cleaning the jug.

Right here comes something of my own invention; that is, I have not heard of anybody else using water in *just* the way I do. It is well known that a running stream will thoroughly cleanse many substances better than any other means of using water. The reason is, the current constantly carries away all impurities, and fresh clean water is constantly taking the place of that charged with the matter to be removed. Well, I accomplish the above result by letting the rubber tube remain in its place until the colon is thoroughly cleansed, and the water entirely emptied from the pail. The plain rubber tube, without any nozzle of any kind, gives a larger stream of water, and finishes the cleansing much quicker, than where the hard-rubber tube is used. If you do not find yourself cleaner than you have been before in years, I shall be mistaken.

Let me give you a little of my experience: During all my life I have been more or less subject to what is called summer complaint and trouble with the bowels. My wife, years ago, recommended this water remedy as ordinarily applied by physicians. But I got a notion in my head that it was unnatural, and tinkering with Nature's business. The very thought of the thing, also, had

something repulsive about it to me. I thought it was well enough for old women, and possibly for babies and sick people, and so I went on suffering. After I had paid \$4.00 for the secret, however, I could not very well do less than to make a test of the thing that was recommended so highly. Of course, I succeeded without a bit of trouble; and, to my astonishment, before I got through I removed a vast amount of trash of different kinds that my nose bore vivid evidence to being unfit to lodge in the human system. Now at this time I was not conscious of being in particularly poor health. In fact, I did not suppose that I needed any remedy of any sort; but in my eagerness to see whether the new drugless remedy was what it claimed to be, I determined to give it as full a test and examination as I could. In order to see whether any injury or even unpleasant symptoms could result from a very frequent use of the internal water bath, I used it for some time, every day; lately from two to three times a week. I was agreeably surprised to find that the very offensive smell given forth on first using it did not manifest itself again; and I was led to conclude that this superfluous matter, if taken from the system at once, need not be particularly offensive. On waiting, however, for ten days or more, the same peculiar offensive smell was present; and after having used the remedy for six months or more, together with the testimony of great numbers of others, I am ready to conclude that it is no more harmful than bathing the body, or even washing the face. Some may urge that it is not according to nature. But, my friends, few things that we do nowadays are "according to nature." I am not sure that washing the face is "according to nature." I am sure, however, that washing the whole body greatly assists Nature in her efforts to ward off disease. The Bible commends it in our text. When you urge "nature," you should remember that man is uneducated by nature. The savages in the isles of the sea are a specimen of nature without civilization and the restraint of Christianity. They are not only heathens but cannibals. Now, I can not tell why God left humanity through all these ages without this knowledge which seems at present so conducive to our health; and when we come down to the real truth of the matter, he did *not* leave us without it. The thing has been before us for hundreds of years. We simply have been dull in appropriating the knowledge that was before us so long.

I do not know how many forms of disease this matter of internal bathing will remove. I suspect, however, that people in general will enjoy much better health in every way if the waste matter of the system be thoroughly removed about as fast as it accumulates. Typhoid fevers are considered at the present day as being the result of bad air, bad water, and unwholesome smells in our cellars and around our buildings. Is it any thing strange that the continued presence in the human body, of the most offensive matter we can imagine, should be the cause of disease? Physiologists tell us, if I am

correct, that the elements and juices of our daily food are constantly passing into the circulation, even after they have passed the intestines and reached the colon. If this be true, our systems may be poisoned by secretions from this offensive matter. In a state of health, very likely nature takes care of this; but, unfortunately, few people are in the possession of full health. A man or woman who is thoroughly well in every way is the exception and not the rule.

During the past year, quite a few testimonials have been given in these pages in regard to this drugless treatment of disease, and I could easily fill this present number of GLEANINGS with testimonials, many of them astonishing ones. I will, however, for the present, content myself by giving you simply my own experience. For several years past I have been having occasional distressing spells of sick-headache, sometimes accompanied with vomiting. I am very apt to have these spells while traveling. One such attack nearly spoiled my visit at Dr. Miller's. While at Madison, Wis., during a beautiful winter night, I suffered from severe headache and sickness at the stomach for more than four hours. Those who have similar attacks know something about the suffering that accompanies it. So far as I know it was caused by eating a fine large apple during a buggy-ride across the country, the afternoon before. I thought that, if I was getting so I could not enjoy even an *apple* without trouble in my digestion, I was getting into a bad state. These periodical headaches kept getting more and more frequent, and I began to think my health was giving way in that direction. If somebody had told me, during that night in Madison, that I could have perfect relief in three minutes, without using any sort of drug or medicine, I would willingly have given *ten dollars* for the privilege of lying down to rest, and getting the sleep I needed, so as to fit me to enjoy the convention next day. Well, during these past six months I have had a number of attacks of this same sick-headache and distress from indigestion. The new remedy has given perfect and immediate relief every time. It seems to be the result of accumulation in the colon. When this is removed out of the way, and the apparatus thoroughly cleansed and put in working trim, Nature goes buzzing along her way. Once upon a time I used to run a small gristmill by windmill power. The mill would occasionally become choked, and it then had to be pulled to pieces, and the surplus meal got out of the way, and then it would go on as lively as ever. It seems to me that the human machine, given us by the great Father above, occasionally gets in this fix, and then the hot water gets it in perfect trim.

A great part of my earlier life was devoted to clocks and watches. I have also been more or less intimately acquainted with the physicians of our town. You may wonder what clocks and watches have to do with this human machine. Listen: Once or twice I have been invited to be present during examination of the human body, to determine after death where the difficulty

lay. In one case that baffled the physicians, dissection revealed the fact that the valves of the heart had become ossified. At another time, a lady, a distant relative of mine, was doctored and drugged for months for a complaint that all doctors thought was of the reproductive organs. An examination after death showed these organs to be in a perfect state of health. The whole trouble was what they call intro-susception—a mechanical derangement of the colon. Of course, the trouble was in the neighborhood of the organ they were doctoring; but when the real truth came to light, they found they had been giving the most powerful drugs known, in the attempt to do something for an organ that had nothing to do with the disease that produced her death. Now, when a watch or clock is deranged we pull it to pieces to see what cog is broken or what tooth is bent. Then we can easily confine our efforts to the precise spot where the trouble is. How often I have wished the human body could be taken apart in the same way, that we might not be blundering in the dark! Well, the medical world is making great progress in just this line. By the use of the knife they go right to the point of disease, and in many cases fix it as we would fix a watch; and I confess that, when I first discovered that we could flood and cleanse at least a great part of the internal body, it seemed to me a great step toward what I had been so long looking for.

I believe our physicians do not all agree that this water thrown into the colon can make its way into the bladder; but when they take that ground, they are certainly at fault. Almost any one who has used the treatment *thoroughly* will tell you that quite a portion of the injected water can be passed off through the urinary organs. If this be true, then you can, by the same means, rinse from all impurities, accumulations, and secretions, the urinary apparatus as well; and I am sure that I have received great benefit in just this line.

Of course, great things are claimed for this new remedy. Some of those who sell the secret have enumerated a long string of diseases that may be cured by flushing the colon. I suspect there is great exaggeration in this line; but for all that, I would recommend that every person who is out of health from *any cause* should go to work carefully, and see what effect this treatment will have. If you are weak and in poor health, and take cold easily, be sure you do the work in an apartment sufficiently warmed so that you may not take cold by drafts or exposure. Although I have never heard of trying it for a patient in a chill, it seems to me it is far ahead of bottles of hot water, hot bricks, and every thing of the sort. I should say, from personal experience, that the hot water goes directly into the circulation; for I can feel the warmth clear to the ends of my fingers, and toes, after using it for, say, five or ten minutes. Just think of the effect on the system, of introducing into the body, say, half a gallon of water just as warm as you can possibly bear your hand in it! I have counseled with quite a number of good physicians before writing this, and the gen-

eral opinion seems to be that it certainly can do no harm, even if it does no good. Therefore let us be clean and keep clean, as in the language of our text; and when we have done every thing we can along this line, we have certainly *paved the way* for Nature to go to work vigorously in her work of patching up and fixing up.

There is one unpleasant feature connected with this drugless remedy. In my instructions I have planned to have the pail hang up in the ordinary out-building belonging to most rural homes. The trouble is this: Before you get through, your clothing will become scented unpleasantly. A chimney attached to the out-building, so as to carry the bad-smelling air clear out at the top, would be a remedy. The close out-building, with a vault underneath, with no chance for a circulation of air, seems to be the worst arrangement we can have in this one respect. A very open building, so that the air can blow freely through and all around it, would probably not scent the clothing. A friend suggests that the form of water-closets used in cities, where water and nothing else is used to carry away accumulations, is a perfect arrangement for the drugless remedy. The Smead system will doubtless work beautifully, only they are not so arranged, usually, as to dispose of so large a quantity of water. If this new remedy, which commends itself to every one who loves cleanliness, comes largely into vogue, as I suspect it will, our out-buildings must be planned especially for them. It seems to me that this is a matter that not only our *health-journals*, but our rural and agricultural journals, should take in hand. In our family, one member has been perfectly cured of a chronic diarrhea of years standing, that threatened to be something very obstinate and serious. Another has been receiving great relief from a tendency in the opposite direction; and wherever it is used, so far as I know there has been but one verdict. A good many of my friends and acquaintances have paid \$4.00 for the remedy; and in several cases no one knew they were using it until those around them began to notice a wonderful improvement in the general health. When questioned, this drugless remedy was the explanation. Our printers are instructed to have several thousand copies of this paper printed for free distribution. We will mail to any of the readers of GLEANINGS, or, in fact, to anybody else, just as many as they want, to give to whoever needs it; and the more calls you make for them the better I shall be pleased. I have had, as you may know, some experience in furnishing without pay things that benefit mankind. He who is working to benefit his fellows will always find the wherewith. God himself will see to it, when the work is done within the bounds of reason, and in a Christian way. I should be glad to answer any questions our friends may see fit to ask. One great reason for writing this paper is the *general* desire for information in regard to this whole matter—not only from my own acquaintances here in Medina, but from far-away friends.

SPECIAL NOTICES.

THE HUBBARD SECTION-FORMER.

We can furnish this machine, described elsewhere, for \$2.50. It weighs 24 lbs., and its extreme length is 5 feet.

THE HONEY MARKET AT MEDINA.

Honey is going off some better of late, especially to-day (26th) when we are shipping 100 cases (12,000 lbs.), in three lots. Most of this is for manufacturing purposes, and goes at a special price. For prices we refer you to page 43 of No. 2, current volume.

PLANET JR. CULTIVATORS AND TOOLS.

We have the new 1891 catalogue of these valuable garden implements. A number of new tools have been added to the list, and old ones improved. Besides, we can make better prices than usual. We have the catalogue ready to mail on application, and in each is a sheet giving our net prices, which are from 15 to 50 per cent below catalogue prices. If interested, write for catalogue.

MAPLE SUGAR AND SYRUP.

The maple season opened early this year, and the sugar and syrup produced thus far excel the average in quality. We have a limited quantity on hand, which we can furnish at the following prices: Syrup in 1-gal. sq. cans at \$1.20 each; \$11.00 for 10; \$21.00 for 20 cans. In 5-gallon cans, if preferred, at 5 c. per gallon less, when we have it put up this way. Choice sugar at 10 and 11 cts. per lb.; $\frac{1}{2}$ ct. less in 50-lb. lots; 1 cent less in barrel lots of 300 lbs.

WHITE-CLOVER SEED.

We have a nice lot of this, which we bought so as to be able to make the following price: \$8.00 per bushel; \$4.10 per $\frac{1}{2}$ bushel; \$2.20 per peck; 18 cts. per lb. White-clover seed has always been higher than alsike till this year, but we can now sell it lower. The time to sow these seeds is during this and the next month, according to locality. Alfalfa clover seed at \$7.00 per bushel; \$3.60 per $\frac{1}{2}$ bush.; \$1.90 per peck; 15 cts. per lb.

JAPANESE BUCKWHEAT WANTED.

Those having choice clean Japanese buckwheat seed to sell will do us a favor to mail us a small sample, and write how many bushels (50 lbs.) you have to sell, and the price you ask for it. Remember, that, as we are selling it lower than last year, we expect to buy it lower. As a rule, it is selling for about what the millers pay for it to grind. Choice clean seed brings a little higher price.

ALSIKE CLOVER SEED.

We advanced the price of this the first of January to \$9.00 per bushel; \$4.60 per $\frac{1}{2}$ bushel; \$2.40 per peck; 20 cts. per lb., bag included. Since then the market has been very firm—at one time as high as \$9.00 wholesale, in large lots, bags extra. We expected to have to advance the price again, but the demand has slackened, and the market is easier, so that we propose to leave our price where it is, although at this price we sell on a very small margin. We have choice seed, ready to fill orders promptly.

CAULIFLOWER SEED FROM H. A. MARCH.

We have just received by mail a pound of seed, and here is what friend March says about it:

"It is of 1890 growth, and I cut and sold in market every head that was not 'perfection.' It is really stock seed that I grew last year. My reports from the stations are better this year than last; and all growers who used my Puget Sound seed are sending for it again this year."

Fidalgo, Wash., Feb. 7.

H. A. MARCH.

The price will be 5 cts. per packet; $\frac{1}{8}$ ounce, 25 cts.; $\frac{1}{4}$ ounce, 40 cts.; one ounce, \$1.50. Our friends will notice that these prices are lower than they ever have been before, and at the same time the quality of the seed is superior to any thing that has ever before been raised. When you get an orthodox *bee-man* to raising seeds, or any thing else, he generally "gets there" sooner or later.

WHITE AND CREAM SECTIONS.

Owing to an exceedingly open winter in Ohio a year ago, there was very little basswood cut till spring; and this spring, cut lumber is not a clear white, but more of a cream. Had we not secured about 150,000

feet of extra nice white lumber in Michigan, we should have been poorly supplied for white sections. This winter we have already twice our usual year's supply of the nicest white basswood we ever had. It will be a month or six weeks yet before any of this is dry enough to work into sections, and we have got to the end of our dry white from Michigan, last year's cut. We have white 1-lb. sections in stock, 7 to foot, $1\frac{1}{4}$ and $1\frac{1}{2}$ inches wide; but, until our new lumber is ready to work we shall have to furnish other widths and sizes in cream color. Of course, we will furnish these cream color at a lower price, and many of you no doubt would just as soon have them at the lower price. We have just been rigging up our dry-house so we can hurry up the seasoning of the white lumber more than ever before; and as this comes to your notice this dry-house is running full blast. We have only a limited quantity of lumber for cream sections, and make this into sections only because of the present dearth of white. As soon as our white lumber is dry enough we shall discontinue the cream grade.

PRICE OF 1-LB. SECTIONS.

The price of a single thousand 1-lb. one-piece sections, with most of the manufacturers and dealers, is \$3.50. In larger lots the price varies somewhat. To be uniform with other large dealers we make the following:

Quantity.	No. 1 white.	Cream, when we have them.
Less than 250, per 100	\$ 50	\$ 40
250 1-lb. sections	1 00	80
500 to 2000, per 1000	3 50	3 00
2000 1-lb. sections	6 50	5 50
3000 "	9 00	7 50
5000 "	14 00	12 50

Prices of white sections in larger quantities made known on application. Cream sections are not sold for less than above figures in any quantity.

VEGETABLE PLANTS FOR MARCH.

Well, I suppose we might as well confess we have not any, unless it be Palmetto asparagus and strawberries. We have a few cold-frame Jersey Wakefield cabbage-plants, but not enough good ones to offer them for sale. We have a great lot of plants raised from seed started in the greenhouse in January and February, but none of these will be real nice to send out before the middle of March. The same is the case with transplanted lettuce-plants and celery-plants. Plants from the seed-bed we have abundance of, of cabbage, lettuce, and celery. But these are so delicate, and need so much care, both in shipping and transplanting, that about half of the time they do not amount to much. We can send them if you wish, at the prices we have in former years; but unless in the hands of an expert, they (seedlings) are often not a success. We can furnish asparagus-plants and strawberry-plants at 10 cts. for 10; 75 cts. per 100, or \$6.00 per 1000. If wanted by mail, add 5 cts. for 10 or 25 cts. per 100. The four strawberry-plants we have selected to offer for spring planting are the Jessie, Bubach, Gandy, and Haverland. The Jessie and Gandy are growing in the greenhouse, so we can take them up at any time. The Bubachs are in the open air; but as we seldom have much frost in March, we can take them up almost any time. But of the Haverlands, our stock is already exhausted, and we are waiting for a shipment of 5000 plants which we have engaged as soon as they can be taken up. We are going to put these out in our rich plant-beds, under glass; but we prefer to have them make some growth before sending them to customers; therefore we can not furnish you Haverlands right off now. We can send all the rest promptly.

SECOND-HAND FOUNDATION MILLS.

We have on hand to dispose of, the following second-hand mills. As a rule we consider new machines the cheapest to buy, even at a much higher price; but there are circumstances when a man wants to make only for his own use, and can not afford a new machine when it may be profitable to buy an old one.

One 12-inch Dunham mill, formerly used by Dabant, and in fairly good order; makes heavy brood foundation with round cells. It sold when new at \$50.00; will sell now for \$18.00.

One 10-inch, our own make of several years ago, in fair condition, will make fairly good brood foundation; will sell for \$10.00.

One 10-inch, of our make, in fair condition; used

some more than the last, but well taken care of; a brood-foundation mill; will sell for \$9.00.

One 6-inch mill, of our own make a number of years ago; better adapted to brood than section foundation; will sell for \$6.00.

We have also a new 8-inch mill for thin surplus foundation, hexagonal cell, which is a size we do not advertise. It has not been used, and is first class. Price \$17.50.

It seems as though we never had such a demand for foundation mills during what we call the "dull season" as we have had the past few months. We planned to fill all orders, and get some mills ahead so we could be more prompt in filling orders during the rush. We hoped, also, to get a little chance to experiment with a view to further improvement; but no chance has come. Instead we are behind on mill orders already, and have been more or less behind for a month or two back. We are working three men in this department, and turning mills out at the rate of nearly two a day, so we hope soon to be up and have some machines ahead. The mills we are turning out now are better than ever. On the ten-inch machines we now put only one pair of gears, which answers the purpose fully as well as two, as formerly used.

OUR \$8.50 BEE-KEEPING OUTFIT FOR BEGINNERS.

There are a good many beginners who feel all at sea when they get hold of an apianian catalogue. They want to start to keeping bees, but do not know exactly what they want, and can not afford to buy a lot of stuff they do not absolutely need—at least, until they have a larger apiary or more experience. For the convenience of just such people we have selected an outfit that gives a beginner all that he absolutely needs as a start. He should have a few hives, and the necessary tools for handling bees, and, not less important, a bee-book. We append the following table, selected from our 52-page catalogue; mailed on application.

One A B C book, bound in cloth.....	\$1.10
One No. 2 bee-veil.....	.60
One Clark smoker.....	.50
Five No. 1 Dovetailed hives, complete, in the flat, for comb honey, including all inside furniture, sections, separators, etc.	5.56
2 lbs. light brood foundation.....	.96

Total.....\$8.66
We will lump the whole in for an even.....\$8.50

Directions for nailing and putting together will be put in with each package, giving sectional drawings showing each part. There possibly may be some who would prefer to see a hive nailed up. For \$1.50 more, or an even \$10.00, we will send a No. 1 Dovetailed hive, put up nailed and painted, complete, for comb honey. The material in the flat or knock down will be so packed that there will not be more than 2 lbs. of crating, and will go for third-class freight. The freight in this and adjoining States will be from 50 cts. to \$1.00.

The A B C of Bee Culture will give the necessary instructions how to start. Read Transferring, Nuclei, Comb Foundation; and, as the season advances, Comb Honey and Swarming. Along in the fall you will need to read carefully Wintering. All of these subjects will be found in their alphabetical order.

FEEDING BEES IN WINTER—SOMETHING OF IMPORTANCE TO BEE-KEEPERS.

In England they advertise soft candy for placing directly upon the brood-frames for early spring or winter feeding of colonies where it is thought they are or will be short of stores soon. Several have reported that the ordinary Good candy (probably the same thing), made in 1-lb. lumps, and placed directly on top of the brood-frames, is just the thing to prevent starving. There are those who do not want to bother with making candy, so we have decided to furnish it in pound packages for 15 cts., by express or freight with other goods. The packages are all ready for use. The postal regulations are such that we can not send it by mail. Ten packages will be sent for \$1.35, or, in bulk of 10 lbs., \$1.20. Fifteen cents, if it saves a colony, is money well invested.

BEES & SUPPLIES FOR IOWA.

Send for my supplement for 1891, now ready (no new catalogue). Say whether you have my catalogue dated 1889 and 1890. Address *Oliver Foster*, 5-trdb Mt. Vernon, Linn Co., Iowa.

PRICE LISTS RECEIVED.

Since our last issue we have received price lists of hives, queens, etc., from the following parties:

A. A. Weaver, Warrensburg, Mo.
Roe & Kirkpatrick, Union City, Ind.
D. E. Jacobs, Longley, O.
F. H. Dunn, Yorkville, Ill.
C. W. Costellow, Waterboro, Me.
S. Valentine, Hagerstown, Md.
Bittenbender & Jorian, Knoxville, Ia.
Chicago Bee-keepers' Supply Co., 65 Clark St., Chicago, Ill.
The following are from our press:
J. F. Smith, Dalton, Pa.
W. S. Bellows, Ladora, Ia.
A. E. Fields, Wheaton, Ind.
W. D. Soper, Jackson, Mich.
J. J. Bradner, Findlay, Ohio.

CONVENTION NOTICES.

The Bee-keepers' Association of Sanilac, Tuscola, and Huron Counties, Mich., will hold its fourth semi-annual meeting in the Court house at Caro, March 11 and 12, 1891.

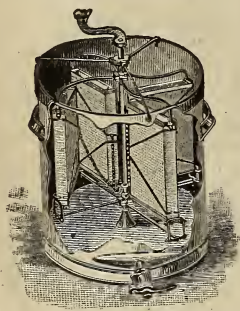
J. G. KUNDINGER, Sec'y.

The Western Bee-keepers' Association meets in Ridetown, Ontario, March 18.

G. C. SCOTT, Sec'y.

The Bee-keepers' Association and Fair will be open May 6. Open to all.
Ionia, Mich.

H. SMITH, Sec'y.



EVERYTHING
USED BY
BEE-KEEPERS.

EDWARD E. NEWCOMB,
Pleasant Valley, N. Y.



Please mention this paper.

SECOND-HAND TYPE FOR SALE.

PURE HONEY

12A Great Primer Copper-plate. \$1.25.

GREAT PRIMER Egyptian Condensed.

12A 25a Great Primer Egyptian Condensed. \$1.00.

Great Primer Minster.

8A 18a Great Primer Minster. \$1.75.

A B C Bee Culture

5A 14a Two-line Pica Minster. \$2.25.

LONG PRIMER PLATE

12A Long primer Copper-plate. \$1.00

NEW KODAKS.

11A 23a Great Primer Runic.

LONG PRIMER ALDINE, with l. c.

34A 26a Long Primer Aldine. \$1.25

Agricultural Society

3A 10a Spencerian Script. \$1.00.

A. I. ROOT, Medina, O.

Leahy M'f'g Co.,

—UNDOUBTEDLY THE—

LARGEST PLANT IN THE WEST.

Built exclusively for the manufacture of Ap-
 iarian Supplies. One and One-Half Acres Floor
 Space. We sell as Cheap as the Cheapest, and our
 goods are as Good as the Best. Parties will do
 well to write us for estimates on large orders.
 We will send you our catalogue for your name on
 a postal card. Address LEAHY MFG. CO.,

In response to this advertisement mention GLEANINGS

Established 1878.

SMITH & SMITH,
Wholesale and Retail Manufacturers of
BEE-KEEPERS' SUPPLIES.
KENTON, OHIO.

Price List Free. 4tfdb *Mention Gleanings.*

100,000 STRAWBERRY-PLANTS.

Sharpless, Jessie, Crescent, Bubach, Warfield, Manchester, Cumberland, and Mt. Vernon, 40c per 100, \$3.00 per M. Haverland and Michael's Early, 50c per 100, \$4.00 per M. Crawford's, 60c per 100, \$5.00 per M. Special rates on large orders. Also Gregg, and other Raspberry plants; and a full assortment of grapevines at low rates. D. G. EDMISTON,

ADRIAN, LENAWEE CO., MICH.



OHIO SEEDS FOR ALL CLIMATES

Our climate and seasons are suitable for growing and maturing all seeds.
40 YEARS EXPERIENCE on the Seed Farm taught us this.
 Hundreds of letters from patrons verify it.

Our CATALOGUE is a well arranged, instructive Garden Guide, full of present day common sense ideas, and is sent **FREE** on application. *Tell the new and easy way to grow Onions.* **FREE**

☛ In responding to this advertisement mention GLEANINGS



OPRAY YOUR FRUIT TREES AND VINES

Wormy Fruit and Leaf Blight of Apples, Pears, Cherries, EXCELSIOR SPRAYING
Grape and Potato Rot, Plum Curculia prevented by using OUTFITS.

PERFECT FRUIT ALWAYS SELLS AT GOOD PRICES. Catalogue showing all injurious insects to Fruits mailed free. Large stock of Fruit Trees, Vines, and Berry Plants at Bottom Prices. Address WM. STAHL, Quinex, Ill.

*In responding to this advertisement mention GLEANINGS

NICKEL-PLATED "LEADER" SHEARS.



TABLE OF PRICES.

TABLE OF PRICES.		Prices		
Postage.	Name and size.	Each.	% doz.	3 doz.
5	6 inch nickel Leader Shears.....	20	\$1 10	% 6 00
5	6½ " " " " " "	25	1 25	7 00
5	" " " " " "	30	1 40	8 00
5	7½ " " " " " "	35	1 60	9 00
5	8 " " " " " "	40	1 80	10 00
6	8½ " " " " " "	45	2 00	11 00
7	9 " " " " " "	50	2 25	12 00

About two years ago we bought 150 dozen of above shears, and they have gone off like "hot cakes"—so much so that we have just bought another lot of 350 dozen, which are, if any thing, nicer than the other lot, most of which are gone. The others pleased so well that we got repeated and increased orders from the same parties. Neighbors of those who were fortunate enough to get a pair, on seeing them and learning the price, wanted a pair, and so the orders kept repeating themselves. We are always glad to give our customers a bargain which gives more than satisfaction, and this time they have made a good thing of it, and so do you. And so do you, and so can do a good thing for yourselves, as well as your neighbors, in getting a quantity and introducing them. They are put up $\frac{1}{2}$ dozen in a box, and we can not assort $\frac{1}{2}$ dozen; but we can give you larger lots assorted. $\frac{1}{2}$ dozen of a kind.

A. I. ROOT, Medina, O.

INCREASE YOUR HONEY-CROP

10% to 25% by getting the Five-Banded Golden Italians. Took **First Premium** at Illinois State Fair in 1899. The judge said: "They were the quietest bees on exhibition; the drones were almost pure yellow." Warranted queens, \$1.25; Tested, \$2.00; Selected Tested, \$3.00. Order now, pay when queens arrive. Send stamp for price list. It'db

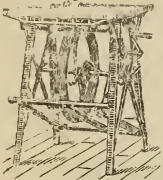
BARRED PL/ MOUTH ROCK EGGS \$1 PER 13.

Good reference given.

S. F. & I. TRECO, Swedona, Ill.

Send a responsible, to call on our client mention GLEANINGS.

Barnes' Foot-Power Machinery.



Read what J. I. PARENT, of CHARLTON, N. Y., says—"We cut with one of your Combined Machines last winter 50 chaff hives with 7-inch cap, 100 honey-racks, 500 broad frames, 2,000 honey-boxes, and a great deal of other work. This winter we have doubled the amount of bee-hives, etc., to make, and we expect to do it all with this saw. It will do all you say it will."

Catalogue and Price List free. Address W. F. & JOHN BARNES, 545 Ruby St., Rockford, Ill.

When more convenient, orders for Barnes' Foot-Power Machinery may be sent to me. A. I. ROOT.

25td

A Four-Color Label for Only 75 Cts. Per Thousand.

Just think of it! we can furnish you a very neat four-color label, with your name and address, with the choice of having either "comb" or "extracted" before the word "honey," for only 75 cts per thousand; 50 cts. per 500, or 30 cts. for 250, postpaid. The size of the label is 2½x1 inch—just right to go round the neck of a bottle, to put on a section, or to adorn the front of a honey-tumbler. Send for our special label catalogue for samples of this and many other pretty designs in label work.

A. I. ROOT, Medina, O.

Cash for Beeswax!

Will pay 25c per lb. cash, or 25c in trade for any quantity of good, fair, average beeswax, delivered at our R. R. station. The same will be sold to those who wish to purchase, at 31c per lb., or 35c for best selected wax.

Unless you put your name on the box, and notify us by mail of amount sent, I can not hold myself responsible for mistakes. It will not pay as a general thing to send wax by exp. ess.

A. I. ROOT, Medina, Ohio.

Maple Sugar and The Sugar-Bush

THIS IS A NEW BOOK BY

PROF. A. J. COOK,

AUTHOR OF THE

BEE-KEEPER'S GUIDE, INJURIOUS INSECTS OF MICHIGAN, ETC.

The name of the author is enough of itself to recommend any book to almost any people; but this one on Maple Sugar is written in Prof. Cook's happiest style. It is

➤ **PROFUSELY** ➤ **ILLUSTRATED.** ➤

And all the difficult points in regard to making the very best quality of Maple Syrup and Maple Sugar are very fully explained. All recent inventions in apparatus, and methods of making this delicious product of the farm, are fully described.

PRICE: 35 Cts.; by Mail, 38 Cts.

A. I. ROOT, Medina, Ohio.

BEE-KEEPERS' SUPPLIES.

We manufacture all kinds of Bee-keepers' Supplies, and keep in stock

Sections, Comb-Foundation, or any thing wanted by the bee-keeper, at the lowest price.
DAVID LUCAS,
56d Jewett, Ohio.

✕ Gentle · Carniolans. ✕

To reduce my stock I will sell 50 colonies of Carniolan bees. All with carefully bred, prolific young queens. Prices reasonable.

5-sdb **T. E. TURNER, Templeton, Wis.**

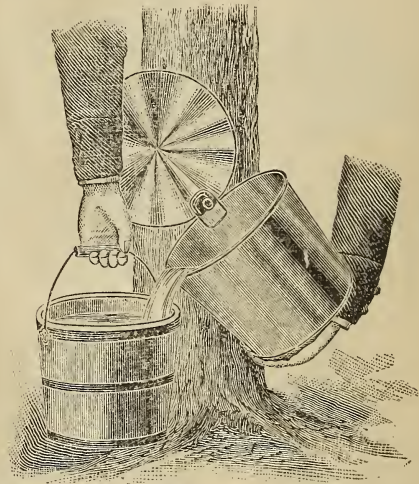
VANDERVORT COMB-FOUNDATION MILLS.

Send for samples and reduced price list.

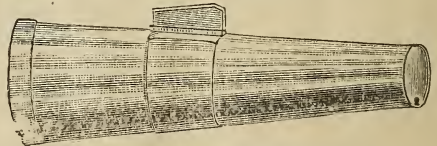
1td JNO. VANDERVORT, Laceyville, Pa.

Maple Sugar Supplies

Maple-sugar-making time is at hand, and some are inquiring the price of supplies. First, you should supply yourself with that excellent book by Prof. Cook, "Maple Sugar and the Sugar-Bush;" price 35 cents; by mail, 38c. By studying this you may save many times the price of it. Notwithstanding the advance in the cost of tin, we are able to offer you sap-buckets and spiles and cans at last year's prices, as below:



Above cut shows a bucket hung on wire loop, with hinged tin cover, and manner of emptying.



IMPROVED RECORD SAP-SPOUT.

Record sap-spouts, \$1.00 per 100; \$8.00 per 1000.
10-qt. buckets, 1C tin, \$15.00 per 100; 1X tin, \$17.00;
12-qt. buckets, 1C tin, \$16.00 per 100; 1X tin, \$18.00.
Patent hinged covers, \$6.00 per 100. Reversible wood covers, \$4.50 per 100. Wire loops for wood pails, 30c per 100; for tin pails, 25c per 100. 1 gal. square cans, 50 or 100 in a crate, \$12.00 per 100. Boxed 10 in a box, for re-shipment when filled, \$1.50 per box; \$14.00 for 10 boxes.

A. I. ROOT, MEDINA, OHIO.

Wants or Exchange Department.

WANTED.—For 1891, as learners, two brisk young men desirous of perfecting themselves in modern apiculture. Must be strictly temperate, and give good reference. S. I. FREEBORN, Ithaca, Wis.
4-5-6d

WANTED.—Situation in an apiary in any State. I can give good reference, and I understand a little about bees. JAMES M. SMITH,
4d Manahawkin, New Jersey.

WANTED.—A second-hand 10-inch foundation machine, also a 6-inch machine for thin foundation. Parties having either for sale will please write particulars, and state price. S. RAY HOLBERT,
4d Monongah, W. Va.

WANTED.—To exchange S. hives for foot-power lathe, blacksmith's drill, type-writer, or offers. Write before sending. ALBERT GALLOWAY,
4-5d Kirkwood, Ill.

WANTED.—A young man who is accustomed to work among bees and poultry. Must give satisfactory references, be strictly temperate, and not afraid of hard work. JAMES MCNEILL,
4tfdb Hudson, N. Y.

WANTED.—A steady, industrious young man of good habits, to help in apiary and other necessary work. Write, stating wages wanted per month. Address J. W. VAN ALLEN,
4-5d Haney, Crawford Co., Wis.

WANTED.—Two experienced young men of temperate habits to take charge of out apiaries of 150 colonies of bees. Must understand the business. Address, stating price, L. W. BALDWIN,
4tfdb Independence, Mo.

WANTED.—To exchange one Westinghouse engine (25 horse), used only 6 months, in very good order. 4-5d W. S. AMMON, Reading, Pa.

WANTED.—To exchange bees for a tubular boiler from 4 to 8 horse power. Correspondence solicited. D. S. BASSETT,
4-tfdb Farnumsville, Worcester Co., Mass.

WANTED.—To exchange Kaffir corn, melissa, catnip, and spider-plant seeds. 4-5d G. M. WHITFORD, Arlington, Neb.

WANTED.—To exchange 11b. thin Vandervort fdn. for 2 of wax. Samples and testimonials free. 2-7db C. W. DAYTON, Clinton, Wis.

WANTED.—To exchange apiary of 150 colonies of bees. Will take any kind of farm stock, goods or groceries. ANTHONY OPP, Helena, Ark.

WANTED.—To correspond with parties having potatoes, onions, apples, and honey for sale. Prompt attention given to correspondence. Consignments solicited. Prompt returns made. EARLE CLICKENGER, 121 So. 4th St., Columbus, O.

WANTED.—To exchange pure Brown Leghorn eggs for tested Italian queens. 5-tfdb GEER BROS., St. Marys, Mo.

WANTED.—To exchange one trio of B. B. Red Game fowls and Pekin duck eggs for Silver-spangled Hamburgs or White P. Rock fowls or offers. 5d J. C. PROVINS, Masontown, Pa.

WANTED.—To exchange eggs, Black Minorens, Red Caps, Barred P. Rocks, for 4 1/4 x 4 1/4 sections, 7-to-foot preferred. H. M. HERRING,
5d West Hurley, Ulster Co., N. Y.

WANTED.—To exchange a female Scotch Collie Shepherd (imported stock) 2 years old, good breeder, for any thing useful to a teacher or bee-keeper. WILLIAM E. GOULD,
5d Brookside, Mich.

WANTED.—To exchange one Winchester repeating rifle, 44 cal., 7 shot, all in good shape (cost \$35.), or bee-supplies or a Barnes Improved Combined Machine. O. C. ABEL, Wayville, Saratoga Co., N. Y.

WANTED.—To exchange a foot-power saw for honey. Write for a descriptive circular. 5d W. S. WRIGHT, Battle Creek, Mich.

WANTED.—To exchange bees or this season's honey for Pekin ducks and Monroe Seedling potatoes. Address H. O. McELHANY,
5d Cedar Rapids, Linn Co., Ia.

WANTED.—To correspond with parties who wish to improve their poultry. Fair dealing. 5-tfdb D. F. LASHIER, Hooper, Broome Co., N. Y.

WANTED.—An apiarist to take 1/2 interest in an apiary of 100 colonies. Write for particulars. 5d J. C. FRISBEE, 172 Maple St., Denver, Col.

WANTED.—An active man who understands the management of bees; one willing to do general work if necessary. M. G. BEALS,
5d Oto, Woodbury Co., Ia.

WANTED.—To exchange a trio of Pekin ducks for a honey-extractor. F. W. HUMPHRY,
5d Oronoque, Conn.

WANTED.—To exchange one thoroughbred Berkshire boar, one Holstein bull calf. Also, to correspond with farmers who have a few fine Cotswold or Southdown sheep for sale. L. M. RUSSELL,
5d 800 E. Preston St., Baltimore, Md.

For Sale and Rent.

A good apiary of 80 colonies of bees, with 10-inch Bingham fdn. mill, upper stories, supers, 300 empty combs for extracting, 2 extractors, and other apiarian supplies too numerous to mention. Three years' rent on a good 20-acre garden. Dwelling-house and honey-house on the place; 40,000 population within a radius of 10 miles. \$50.00 for bees and 3 years' rent of place. Address L. E. HOLDEN,
5d Zincite, Jasper Co., Mo.

In responding to this advertisement mention GLEANINGS.

FOR SALE.

75 Colonies of Italian and hybrid bees in Simplicity and chaff hives. All or any part of them. John F. Nice,
5d 329 Maynard St., Williamsport, Pa.

FOR SALE. 20 Hives of Italian

bees on the L. frame. Address ALFRED POWERS,
5d BRITTAIN, Summit Co., O.

1891 Early Italian queens from bees bred for business. Each, \$1.00; six, \$4.50. Read this: "Friend Laws:—Yours are the best workers as well as the prettiest bees I ever saw. They beat all others I have ever had. S. D. RICHARDSON, Greenwood, Ark." My queens are large, yellow, and prolific. Order now; pay on arrival. 5d W. H. LAWS, LAVACA, ARK.

If Mr. J. B. Mason will kindly communicate with me he will learn something of great importance to himself and family, but without his signature is no good to any one. J. L. M.,
5d South Boston, Mass.

One Thousand Colonies

Of Black Bees in Box-hives, at \$3.50 and \$4.00, for May, 1891. C. G. FERRIS,
5-tfdb Miller's Mills, Herkimer Co., N. Y.

SEND ME YOUR

BEESWAX

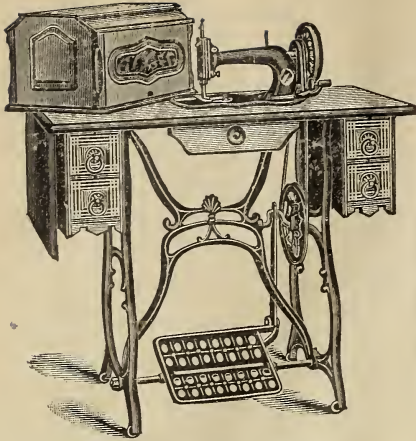
To be made into Foundation. Made on Root or Vandervort mills. Samples of work free. 5-6 C. A. HUFF, Clayton, Mich.

SECTIONS

\$3.00 per 1000; all kinds of bee-supplies cheap. Send for free illustrated catalogue.

5-7-9d

J. J. BRADNER,
600 Lima Ave., Findlay, O.



THE NEW FAMILY SINGER SEWING-MACHINE.

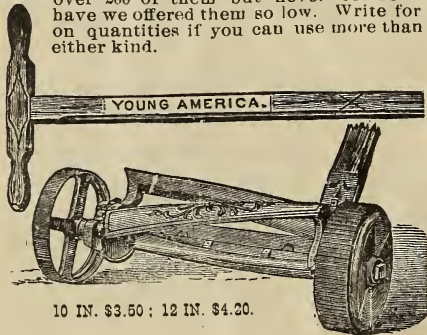
Made from latest models; first class in every respect, and warranted for 5 years. A boon to many an overworked housewife who can not afford to pay the price usually asked by agents. Cut shows No. 4. No. 1 is the same without the cover, leaf, and two drawers. Price \$11.00. No. 2 has a cover, but no leaf or side drawers. Price \$12.50. No. 3, as shown in the cut, without the 2 side drawers at the right. Price \$14.00. No. 4, shown in the cut, price \$15.00. No. 5 has 3 drawers on each side. Price \$16.00. We can furnish a high-arm Singer, in any of these Nos., if preferred, at \$2.50 extra. Wood parts are oil polished, walnut; balance-wheel is nickel plated, and each machine includes a full set of attachments, with instructions for use. We ship them direct to customers from factory in Chicago. We have a catalogue giving cut of each machine and full description which we shall be pleased to mail on application.

A. I. ROOT Medina, Ohio.

YOUNG AMERICA

LAWN MOWER

The cheapest machine offered anywhere. Many prefer them to one with two drive wheels because they run so easily, and are so light. They are just right for running among the hives. For the ladies who appreciate outdoor exercise you could have nothing better than a 10-inch Young America lawn-mower to keep the grass down on the lawn. We have sold over 200 of them but never before have we offered them so low. Write for prices on quantities if you can use more than one of either kind.



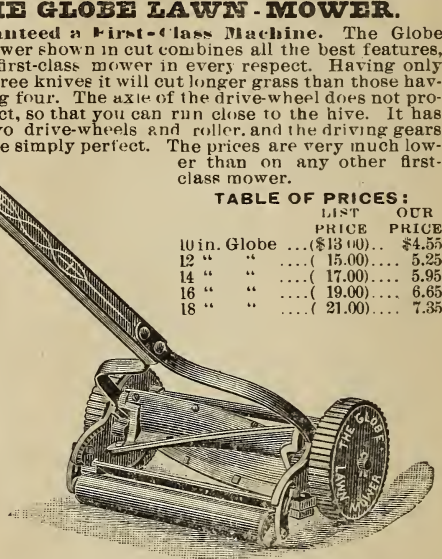
10 IN. \$3.50; 12 IN. \$4.20.

THE GLOBE LAWN-MOWER.

Guaranteed a First-Class Machine. The Globe lawn-mower shown in cut combines all the best features, and is a first-class mower in every respect. Having only three knives it will cut longer grass than those having four. The axle of the drive-wheel does not project, so that you can run close to the hive. It has two drive-wheels and roller, and the driving gears are simply perfect. The prices are very much lower than on any other first-class mower.

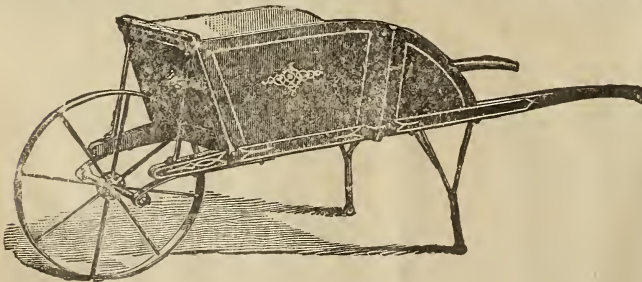
TABLE OF PRICES:

	LIST PRICE	OUR PRICE
10 in. Globe	(\$13.00)	\$4.55
12 " "	(15.00)	5.25
14 " "	(17.00)	5.95
16 " "	(19.00)	6.65
18 " "	(21.00)	7.35



A. I. ROOT, Medina, Ohio.

OUR DAISY WHEELBARROW.



The springs are oil-tempered with adjustable bearings, so the wheel we always run free. More than all, the wheelbarrows are the nicest job of painting and varnishing, I believe, I ever saw, for a farm implement. They are handsome enough to go around town with, and strong enough to do heavy work; and yet the price of the small size No. 3 is only \$4.00; the larger size No. 2 is \$4.25. Over 200 sold in 8 months.

A. I. ROOT, Medina, Ohio.

Illustrated HOME JOURNAL

30 Quarto pages—50 cents a year.

AN Elegant Monthly for the **FAMILY** and **FIRESIDE**. Printed in the highest style of the art, and embellished with magnificent Engravings. Sample **FREE**. Agents Wanted.

THOMAS G. NEWMAN AND SON,
PUBLISHERS

246 East Madison St., - CHICAGO, ILL.

In responding to this advertisement mention **GLEANINGS**.

BEST ON EARTH



ELEVEN YEARS
WITHOUT A
PARALLEL, AND
THE STAND-
ARD IN EVERY
CIVILIZED
COUNTRY.



Bingham & Hetherington
Patent Uncapping Knife,
Standard Size.

Bingham's Patent Smokers,

Six Sizes and Prices.

Doctor Smoker,	3 1/4 in.,	postpaid	... \$2.00
Conqueror "	3 "	"	... 1.75
Large "	2 1/4 "	"	... 1.50
Extra (wide shield) "	2 "	"	... 1.25
Plain (narrow) "	1 1/2 "	"	... 1.00
Little Wonder,	1 1/4 "	"65
Uncapping Knife.....			... 1.15

Sent promptly on receipt of price. To sell again, send for dozen and half-dozen rates.

Milledgeville, Ill., March 8, 1890.

SIRS:—Smokers received to-day, and count correctly. Am ready for orders. If others feel as I do your trade will boom. Truly, **F. A. SNELL.**

Vermillion, S. Dak., Feb. 17, 1890.

SIRS:—I consider your smokers the best made for any purpose. I have had 15 years' experience with 300 or 400 swarms of bees, and know whereof I speak. Very truly, **R. A. MORGAN.**

Sarabshville, Ohio, March 12, 1890.

SIRS:—The smoker I have has done good service since 1883. Yours truly, **DANIEL BROTHERS.**

Send for descriptive circular and testimonials to
11tdb **BINGHAM & HETHERINGTON, ABRONIA, MICH.**

In responding to this advertisement mention **GLEANINGS**.

SECTIONS! SECTIONS! SECTIONS!

On and after Feb. 1, 1891, we will sell our No. 1 V-groove sections, in lots of 500, as follows: Less than 2000, \$3.50 per 1000; 2000 to 5000, \$3.00 per 1000. Write for special prices on larger quantities. No 2 sections at \$2.00 per 1000. Send for price list on hives, foundation, cases, etc.

J. STAUFFER & SONS,
Successors to B. J. Miller & Co.,
Nappanee, Ind.

16-tdb

In writing advertisers please mention this paper.

The **Bee World** is published monthly at 50c per year. It is devoted to the **BEE** tions, and discoveries throughout the **lat-est NEWS**, inven- **WORLD**. bee-keeping world. If you want to keep posted, you cannot afford to do without it. **Subscribe now.** Sample copies free.
2-7db **W. S. VANDRUFF, Waynesburg, Pa.**

In responding to this advertisement mention **GLEANINGS**.

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